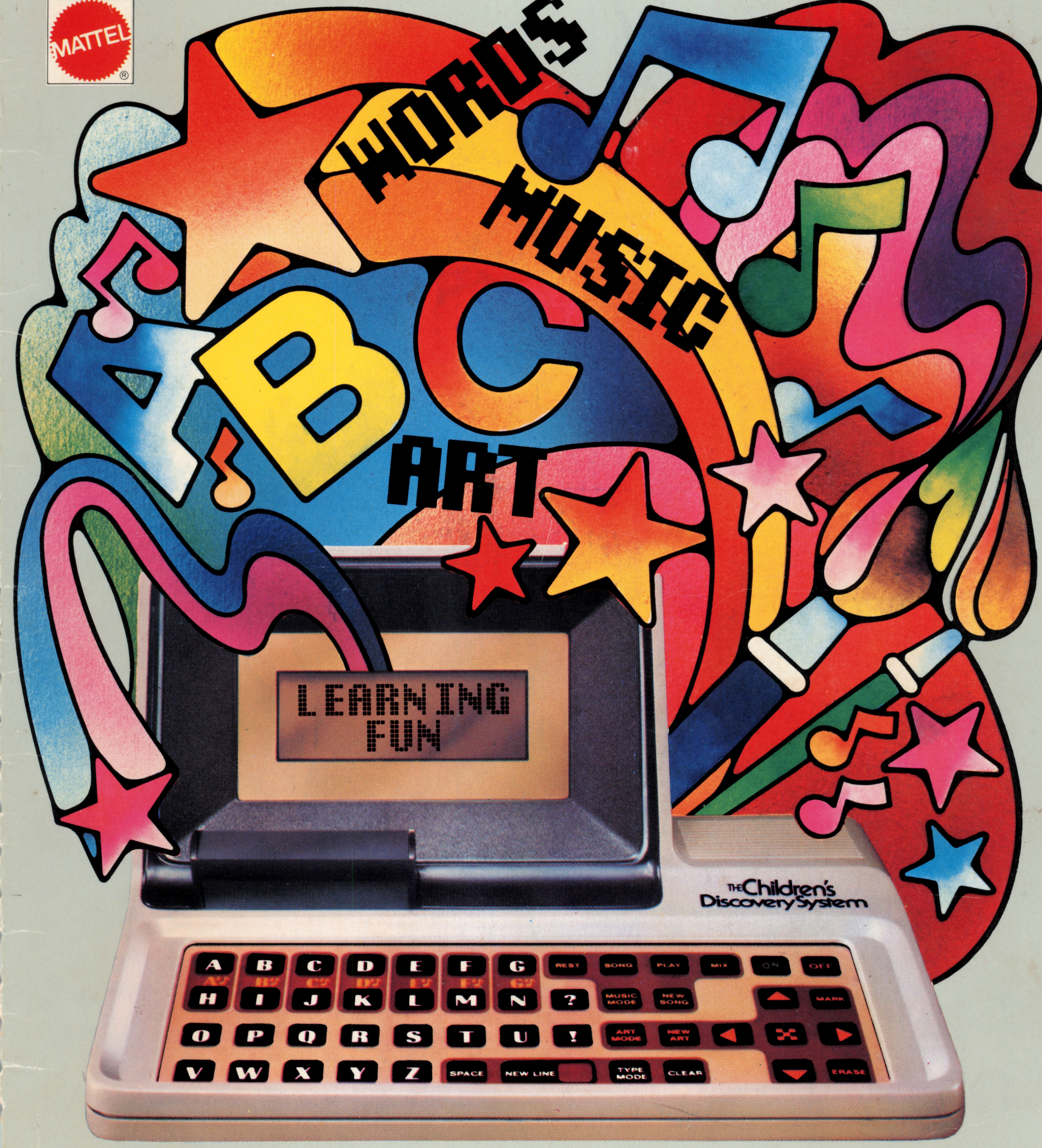
THE Children's Discovery System™

ACTIVITY BOOK


WORDS
MUSIC
ABC
ART
LEARNING FUN
THE Children's Discovery System
A B C D E F G REST SONG PLAY MIX ON OFF
H I J K L M N ? MUSIC MODE NEW SONG MARK
O P Q R S T U ! ART MODE NEW ART
V W X Y Z SPACE NEW LINE TYPE MODE CLEAR ERASE

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90 DAY LIMITED WARRANTY

Mattel Toys warrants to the original consumer purchaser of any of its Electronic Toys that the product will be free of defects in material or workmanship for 90 days from the date of purchase.

During the 90-day Warranty Period, the game will either be repaired or it will be replaced with a reconditioned game of equivalent quality (at our option) without charge to the purchaser, when returned either to the dealer with proof of the date of purchase, or when returned prepaid and insured, with proof of the date of purchase, to

Mattel Electronics Repair Center
5000 West 147th Street
Hawthorne, California 90250

Units returned without proof of the date of purchase, or units returned after the 90-Day Warranty Period has expired, will either be repaired or replaced with a reconditioned model of equivalent quality (at our option), for the service charges set forth below. Payment must be made by check or money order. This out-of-warranty service will only be available for one year from the date of purchase. All out-of-warranty units must be returned postage prepaid and insured to Mattel Electronics Repair Center.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty does not cover damage resulting from accident, unreasonable use, neglect, unauthorized service or other causes not arising out of defects in material or workmanship.

IF YOU NEED SERVICE FROM MATTEL ELECTRONICS REPAIR CENTER. . .

It's available during **and** after the 90-Day Warranty Period.

1. **Pack** the product carefully in its original box. If the box is not available, use a strong carton with plenty of newspaper or other padding. Enclose a brief note telling us the specific problem you are having with the unit and your name and home address. Remove the battery.

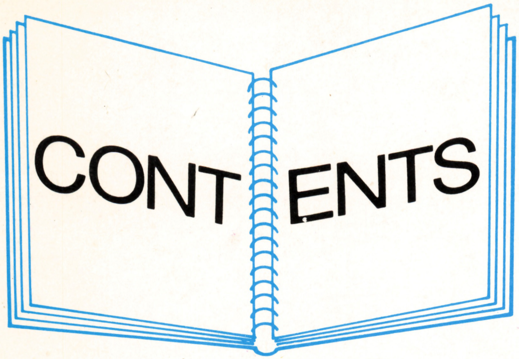
2. **Print** this address on the box:
MATTEL ELECTRONICS REPAIR CENTER
5000 WEST 147th STREET
HAWTHORNE, CA 90250. . .and your return address.

3. **Send** the package by insured parcel post.

During the warranty period, enclose proof of purchase date. After warranty period has expired, enclose a check or money order for $25.00.

IF YOU HAVE ANY QUESTIONS OR
PROBLEMS REGARDING THE USE OF
THE CHILDREN'S DISCOVERY SYSTEM™ COMPUTER
OR YOUR LEARNING FUN MODULES,
CALL THIS TOLL-FREE NUMBER:

(800) 421-2887



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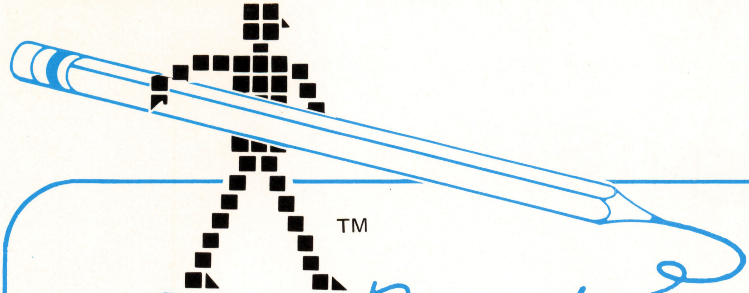


Dear Parents

You have just made a very important purchase for your child, one that will open up worlds of learning and fun over the years. THE CHILDREN'S DISCOVERY SYSTEM™ computer is a self-contained, computerized system of educational and play activities that can be expanded to grow with your child.

We know from child development experts that play and leisure periods can be very important for the growing child. THE CHILDREN'S DISCOVERY SYSTEM™ computer is designed for those periods, to introduce some very creative educational experiences that will increase your child's base of knowledge.

The heart of this system is a *child-sized* computer that is easy to use and understand. It features a multi-function keyboard, memory capability, an animated viewing screen, musical sound effects and three built-in activity modes—Type, Music and Art.

Type Mode helps your child develop vocabulary, spelling, creative writing and study skills through special activities in these areas. Music Mode allows your child to play and compose songs, while learning about musical concepts. Art Mode offers the unique opportunity to draw with a computer while learning about art-oriented subjects. There is a special section on each of these modes in this book. Read the introduction to each section for a more detailed description of what each mode offers.

The real versatility and growth potential of the system, however, lies with the many learning fun modules planned for the future—spelling and word fun...science...history...geography...fractions and decimals...health...art...music...plus arcade, strategy and sport games...

and more! Professional educators assisted in the development of these subjects, to produce a comprehensive learning system. Most subjects offer different learning levels, from beginning to advanced.

THE CHILDREN'S DISCOVERY SYSTEM™ computer is designed to be interactive. Whenever possible, the programmed subjects will allow for your child's input, so he can tailor activities to his own interests and needs. With or without learning fun modules, the computer can be used by your child alone, with a friend, or with you. We invite you to join your child in exploring some of the activities contained in THE CHILDREN'S DISCOVERY SYSTEM.™

THE CHILDREN'S DISCOVERY SYSTEM™ computer comes with a learning module–DISCOVERIES IN™ MATH I. This includes a cartridge that plugs into the computer to add four exciting math functions: a calculator, "flash card" fun, a math quiz game and Metric/U.S. measurement conversions. There is also a separate math activity book of sample problems, facts and fun.

We at Mattel are proud to have developed THE CHILDREN'S DISCOVERY SYSTEM™ computer. We believe it will be an adventure of constant and ever-changing stimulation. Creative. Exciting. Thought-provoking. And fun. Because, after all, that's exactly what learning should be.

Sincerely,

Raymond P. Wagner

Raymond P. Wagner, President
Mattel Toys

DEAR BOYS AND GIRLS

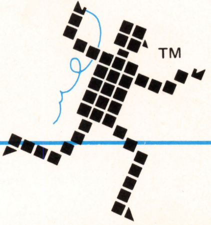
Did you ever think you'd have your very own computer? Well, now you do. Just like the computers made for adults—only it was made especially for you in a just-for-you size. And wait until you see what you can do with it. Practice spelling and learn new words with it. Write and play songs with it. Solve math problems with it. Draw computer art with it. Even play games with it.

You can learn or play all by yourself, with Mom or Dad, or your best friend. With THE CHILDREN'S DISCOVERY SYSTEM™ computer, the fun goes on and on. Although computers are usually great big complicated machines, your computer is very easy to use. The instructions will show you just how easy it is to become a real computer learning whiz!

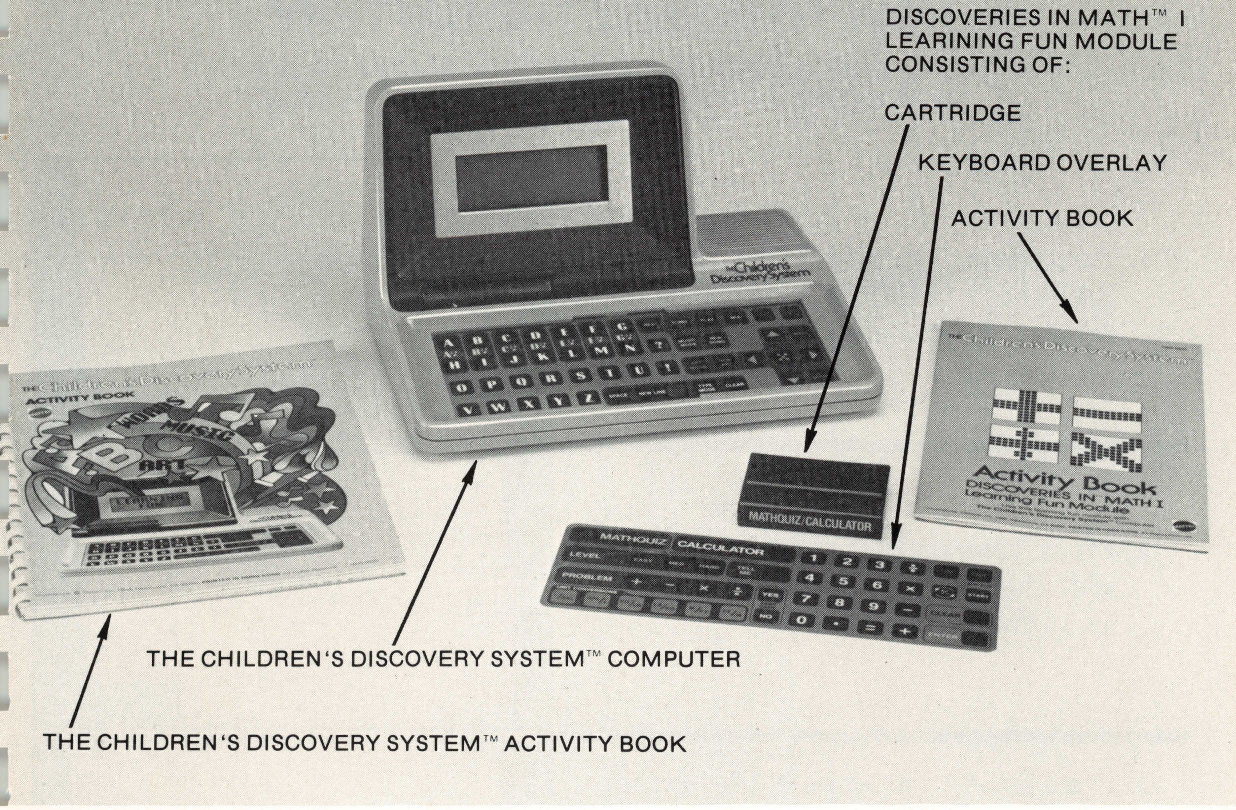
So follow them very carefully and have fun learning with your own computer!

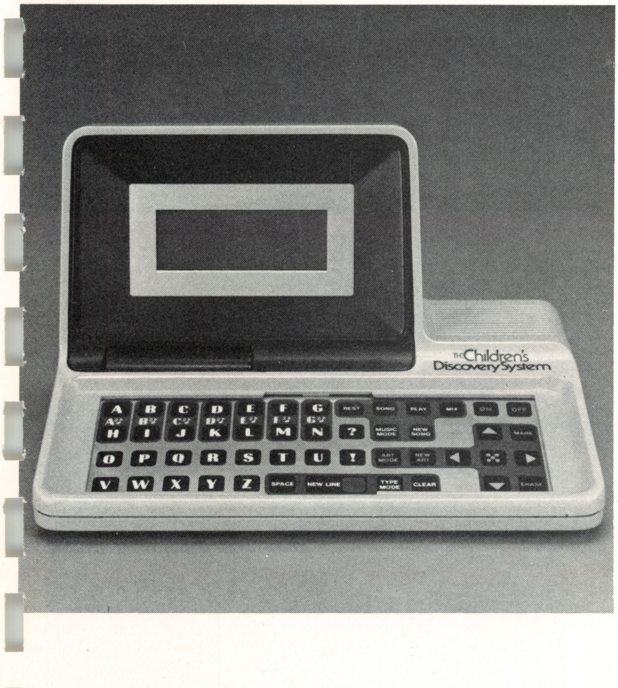
CHARACTER INTRODUCTION

Hi! I'm Cursor the Great.™ Can you guess how I got my name? Well, I'm a computer man, made from many, many little black computer squares. These little black squares are made from a blinking computer square which moves all around your computer screen—we call this blinking square a cursor. That's how I got my name. I'll be around to point out special things to you in your activity book. We're going to have a lot of fun together—so let's get started!



INSIDE THE CARTON YOU WILL FIND:


DISCOVERIES IN MATH™ I
LEARINING FUN MODULE
CONSISTING OF:
CARTRIDGE
KEYBOARD OVERLAY
ACTIVITY BOOK
THE CHILDREN'S DISCOVERY SYSTEM™ COMPUTER
THE CHILDREN'S DISCOVERY SYSTEM™ ACTIVITY BOOK



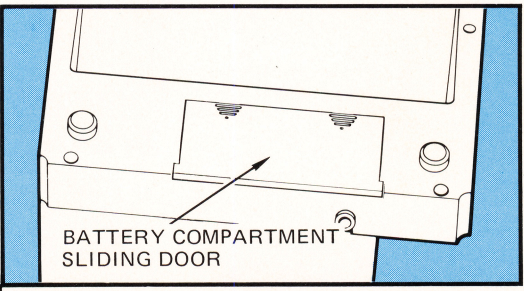
HELP YOUR CHILD SET UP THE COMPUTER...

For easiest viewing of the Liquid Crystal Display, position the computer, as shown in the illustration. Make sure there is adequate lighting on the screen. Arrange light so that it illuminates the screen, but does not glare on it.

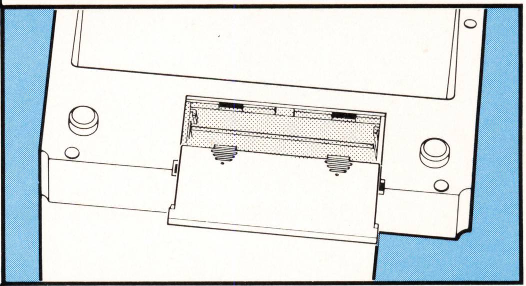
HOW TO INSERT THE BATTERY

THE CHILDREN'S DISCOVERY SYSTEM™ COMPUTER USES SIX ALKALINE AA (PENLIGHT) BATTERIES (not included).

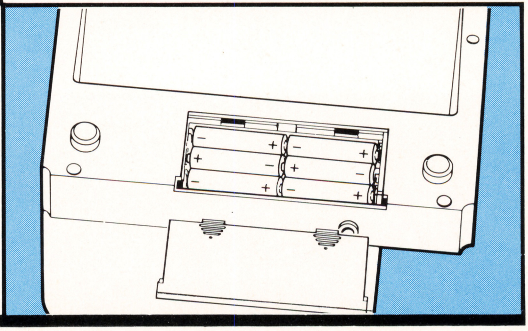
1. Turn computer upside-down. Find the BATTERY COMPARTMENT on the bottom of the computer, at the back.



2. Press down on BOTH ARROWS and slide the compartment door open away from the computer.



3. Place six AA batteries in the battery compartment, as shown in the picture on the right. Make sure the + ends of the batteries match the + signs etched inside the compartment, and the – ends of the batteries match the – signs inside the compartment.



4. Close the sliding door so that it snaps in place. Any time your computer shows a strange display or does not do what it's supposed to do, it probably needs fresh batteries.

TO SAVE YOUR BATTERIES

You can use an AC adapter with your game. If you do, make sure that it meets these specifications:

AC ADAPTER

INPUT: 120 VAC	60 HZ 2W
OUTPUT: 7.9 VDC	100 MA or more

CONNECTOR TIP (+)
3.5 MM MINIATURE TELEPHONE PLUG.

SOME COMPUTER WORDS

AND WHAT THEY MEAN

FUNCTION	What a thing *does*. Writing is a *function* of a pen or pencil. Typing is a *function* of THE CHILDREN'S DISCOVERY SYSTEM™ computer.
INPUT	Information or instructions *you* give to (*put in*) the computer. This word can be used as either a verb or a noun. Verb example: "I have *input* three secret words for you to guess." Noun example: "These three words are my *input* for this spelling game."
MODE	A particular *way* in which a thing works. When you switch to a different *mode* of a computer (like from TYPE to MUSIC) you will usually get a different group of functions to use.
PROGRAM	A group of instructions that tells the computer what to do. Each of your cartridges contains a program.
LEARNING MODULE	The package including activity book, cartridge and keyboard overlay.
CURSOR	The blinking square that appears on the screen and tells you where the next thing you type in will appear on the display.

HOW TO USE YOUR COMPUTER

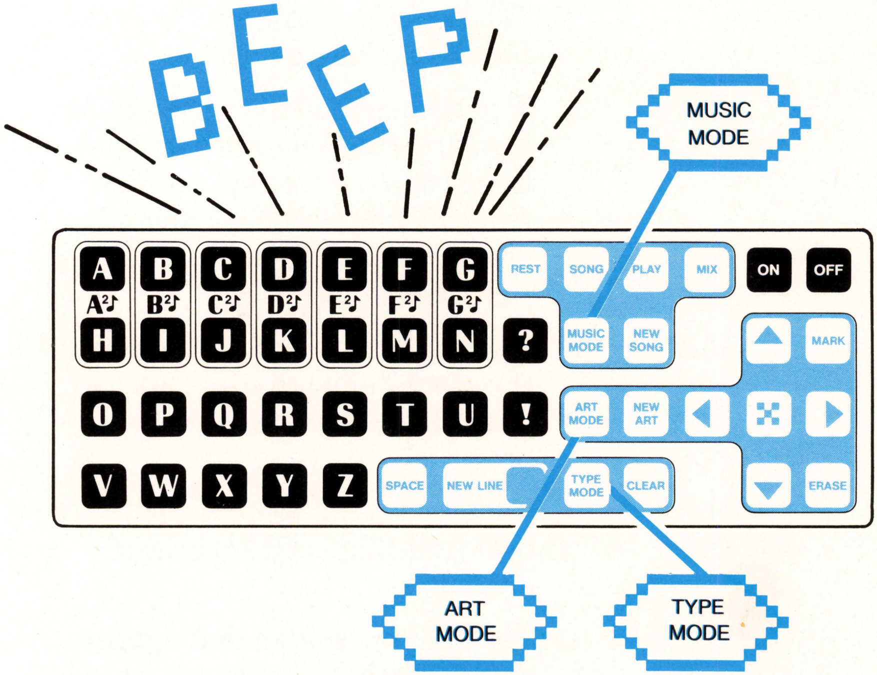
Your computer is programmed to work in two ways:

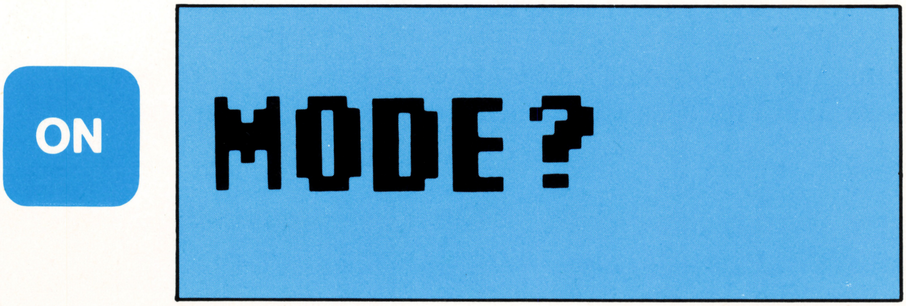
1. With a learning module cartridge and keyboard overlay.

or

2. By itself, with the three modes of TYPE, MUSIC and ART. Each mode has a special section in this book with instructions on how to use that mode, plus exciting computer activities.

LET'S GET ACQUAINTED WITH YOUR COMPUTER KEYBOARD.


BEEP
MUSIC MODE
A B C D E F G
A² B² C² D² E² F² G²
H I J K L M N ?
O P Q R S T U !
V W X Y Z
REST SONG PLAY MIX
ON OFF
MUSIC MODE
NEW SONG
MARK
ART MODE
NEW ART
SPACE NEW LINE
TYPE MODE
CLEAR
ERASE
ART MODE
TYPE MODE



1. Press ON key firmly and hold it down until you hear a BEEP or until the display on the screen changes. You will hear a tune and Cursor the Great™ will run across the screen. When he disappears, the question "MODE?" will appear.
2. Press one of the three MODE KEYS. Remember to hold all keys down until you hear a beep.
3. You may change modes at any time by pressing one of the other MODE KEYS.
4. Follow instructions in the special section of this book for the mode you chose.

ALWAYS TURN YOUR COMPUTER OFF WHEN YOU FINISH USING IT.

Just press the OFF key. If you forget, your computer will automatically turn itself off approximately 2½ minutes after you last press a key.

This keeps you from accidentally running your battery down. Before turning itself off, your computer will play taps.

IF YOU ARE IN ART MODE, your computer will NOT automatically turn itself off. This lets you save a drawing to show Dad when he gets home. Of course, you have to remember to turn your computer off after he sees it.

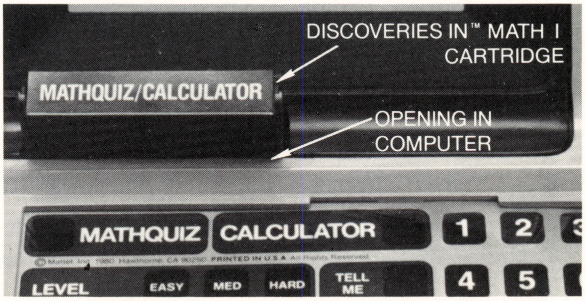
HOW TO USE A CARTRIDGE WITH YOUR COMPUTER

Each learning module contains a cartridge, a plastic keyboard overlay and its own activity book which includes specific instructions.

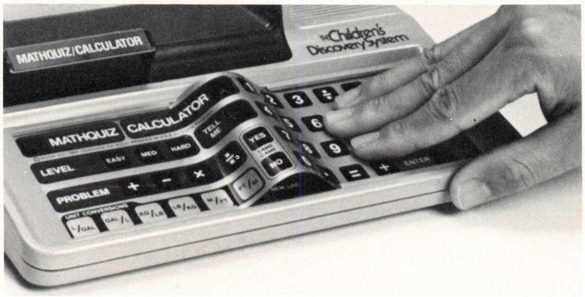
1. Make sure your computer is turned OFF.

2. PUT THE CARTRIDGE INTO THE COMPUTER. *Push it in as far as it will go.* The side that says Math Quiz/Calculator should be facing UP.

When you want to take a cartridge out, TURN OFF THE COMPUTER and pull the cartridge straight out.


DISCOVERIES IN™ MATH I CARTRIDGE
OPENING IN COMPUTER
MATHQUIZ/CALCULATOR
MATHQUIZ
CALCULATOR
LEVEL
EASY
MED
HARD
TELL ME

3. PUT THE OVERLAY OVER THE KEYBOARD. Your learning fun module comes with a thin, plastic sheet that fits over the computer keyboard. This is called an OVERLAY. It is printed on one side only.


MATHQUIZ/CALCULATOR
The Children's Discovery System

Find the LONG LIP that runs all the way around the keyboard, except for a top and bottom space in the middle of the keyboard. Start in this middle space and slip the LEFT side of the overlay UNDER the LEFT TOP and LEFT BOTTOM LIPS. Slide the overlay all the way under the LEFT END LIP, as far as it will go.

Now slip the RIGHT side of the overlay under the RIGHT TOP and RIGHT BOTTOM LIPS. You will have to make a loop in the overlay to do this. (See the picture.) BE CAREFUL NOT TO CREASE THE OVERLAY. Slide the right side of the overlay all the way under the RIGHT END LIP, as far as it will go.

Make sure the overlay is securely under the lip, all the way around the keyboard, except in the middle. This overlay tells you which keys to use in the Discoveries In™ Math I cartridge.

Each cartridge that you use will have its own overlay.

COMPUTERS NEED CARE, TOO!

When you own a real computer, you need to treat it like a real computer. Computers are full of electronic parts that don't like to get dirty or wet or hot. Follow these steps and your computer will do what you tell it to for a very long time.

1. Keep your computer away from very hot or very cold areas. Temperatures over 120° F or under 35° F will damage your computer. To make sure it works properly, use your computer between 60° F and 100° F.
   Avoid sudden temperature changes or direct sunlight, as these will have a bad effect on the liquid crystal display in your computer.
2. Don't get your computer wet. Keep it in a dry place. High humidity and dampness may affect the liquid crystal display. If your computer does get wet, turn it off and keep it off until it dries completely.
3. Keep your computer away from sandy or dirty areas. Don't take it to the beach.
4. Don't drop your computer. Handle with care.
5. If your computer gets dirty, wipe it off with a damp (not wet) cloth.
6. If you're not going to use your computer for a week or longer (say, while you're on vacation), take the battery out. It will last longer this way.
7. Cover your computer when you're not using it. This will keep the dust away. The liquid crystal display is sensitive to dust.
8. Keep sharp or pointed objects away from the keyboard of your computer. These objects can damage or ruin your keyboard.
9. USE **ONLY** THE CHILDREN'S DISCOVERY SYSTEM™ learning fun module cartridges in your computer. Always turn your computer OFF before you insert or remove a cartridge.

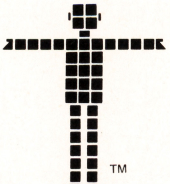
TYPE MODE

Type Mode has been designed with two purposes in mind. When used by your child to do the activities in this section, it will help acquaint him or her with important facts and rules about the language we speak. For example, there are games that show how to put lists in alphabetical order...teach word endings and the spelling rules that go with them...build vocabulary and sharpen spelling skills. There are fun ways to get familiar with interesting word relationships, like homonyms, anagrams and palindromes. Some activities are geared to help your child develop logical ways of thinking...others to spark creativity.

Each game or activity is rated for difficulty and number of players. The key below explains it all. Look for the rating in the upper corner of a page, where you see the activity name.

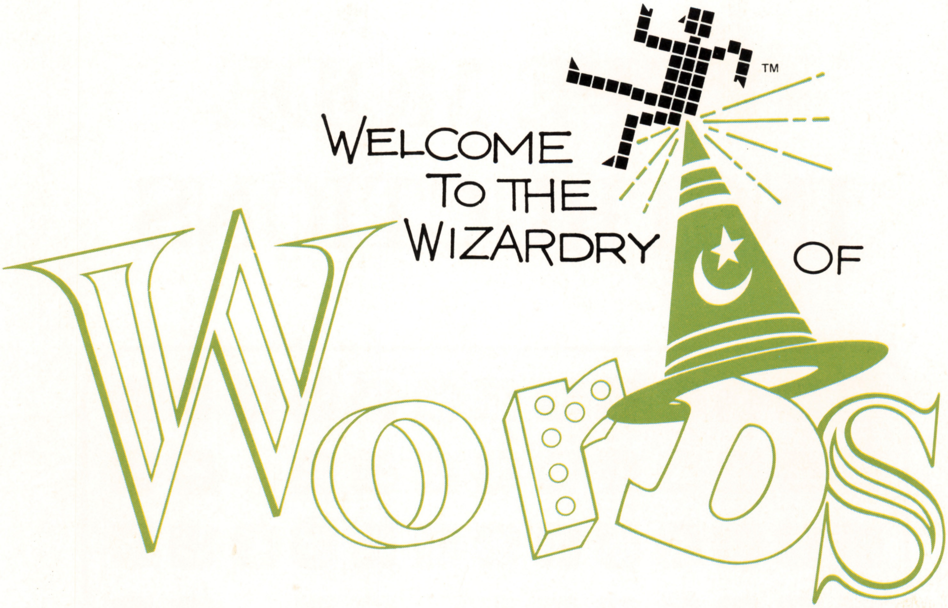
Type Mode serves another purpose, too, and that is to introduce your child to his or her computer keyboard. In Type Mode, most of the keys on the keyboard can be used. After enjoying a few word activities, your child will feel right at home with the computer. Please read through these instructions with your child. Though Type Mode is easy to use, younger children may need a little assistance getting started.

Cursor the Great™ says... Watch for these signs!



E—easy activity
M—medium difficulty
H—hard, for advanced player

1—for 1 player only
2—2 or more can play
½—1 or 2 can play



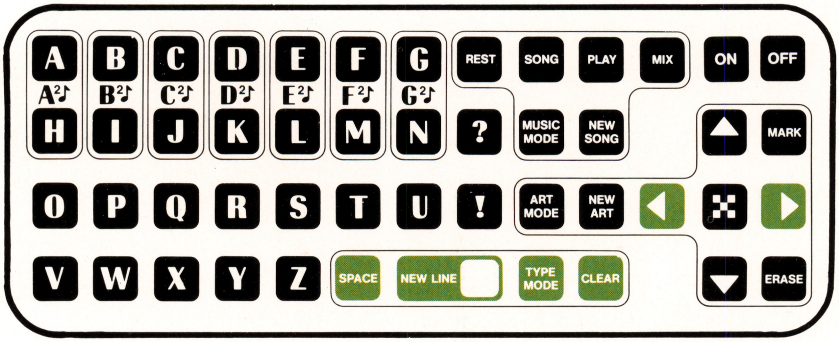
WELCOME TO THE WIZARDRY OF WORDS™

LET'S HAVE FUN WITH WORDS.

Words work in many different ways, and with your computer words are right at your fingertips. You will learn to spell and change most any word you want. Just type the letters and watch your words appear on the computer screen. Type scrambled words or make up words. Learn new word endings. Find out what synonyms, homonyms and anagrams are. Building new words from old, alphabetizing and word games to play with a friend just never seem to end.

So let's learn about the world of words.

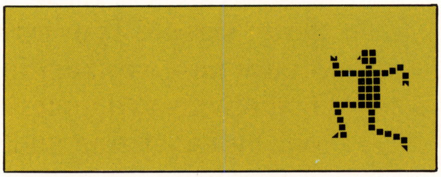
TYPE MODE INSTRUCTIONS


A B C D E F G
A²♪ B²♪ C²♪ D²♪ E²♪ F²♪ G²♪
REST SONG PLAY MIX ON OFF
H I J K L M N ?
MUSIC MODE
NEW SONG
MARK
O P Q R S T U !
ART MODE
NEW ART
V W X Y Z
SPACE
NEW LINE
TYPE MODE
CLEAR
ERASE

The black keys with white letters or words are used in Type Mode. You can also use the LEFT and RIGHT ARROW keys.

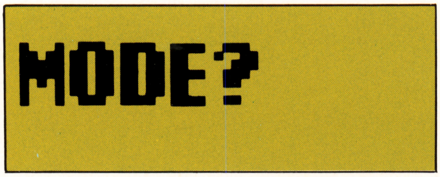
ON

1. Press ON key. You will always see CURSOR THE GREAT™ run across your screen.

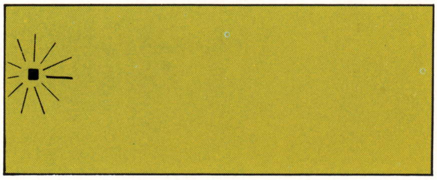


TYPE MODE

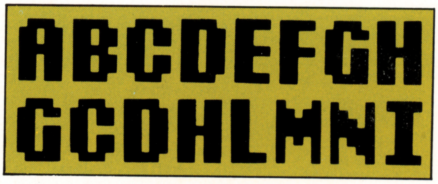
2. The question, "MODE?" will appear on the screen. Answer by pressing TYPE MODE key until you hear a beep.



3. You will see a small blinking square on the left side of the blank screen. This is the cursor. It shows you where your next letter will appear when you type it. Remember! Press all keys until you hear a beep.

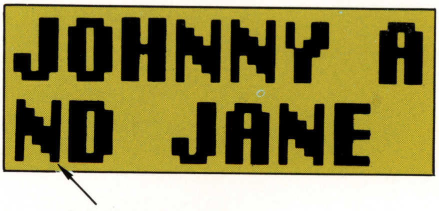


4. To type a letter, press that LETTER key. If you want a blank space between letters or words, press the SPACE key.

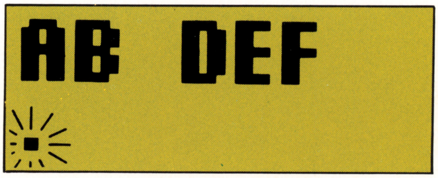


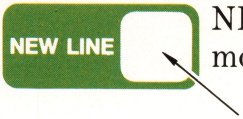
You can type two lines of words or letters. Each line, top and bottom, holds 8 letters or spaces. A blank space takes up as much room as a letter. Your screen shows 16 letters or spaces in all.

5. If you type a word with more than 8 letters, the 9th letter will automatically appear at the start of the other line. If another letter is already in that space, the new letter you typed will replace it.



6. When you complete a line of 8 lines and spaces, the cursor will automatically move to the start of the other line. If you want to go to the other line without filling up the line you are on, press NEW LINE key. The cursor will automatically move to the start of the new line.

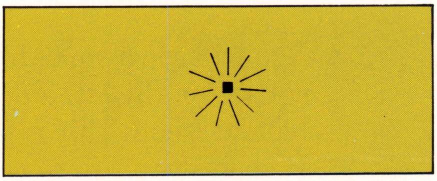


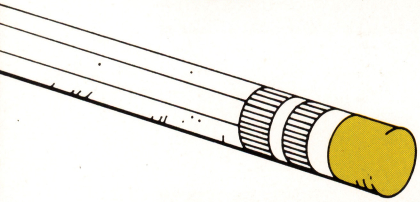


◀

▶

7. If you want to move the cursor without typing in a letter or space, press the LEFT or RIGHT ARROW keys.

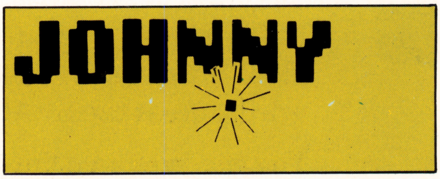




HOW TO ERASE A LETTER

SPACE

1. Move the cursor to the lower left of the letter you want erased. Press the SPACE key. This will erase the letter without typing in a new letter.

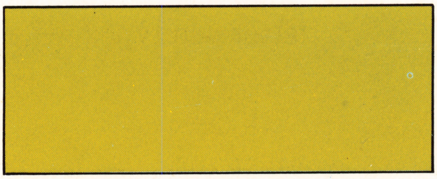


If you want to change a letter, move the cursor to the left of the letter you want changed. Type in the new letter. The cursor will move on to the next letter space.

CLEAR

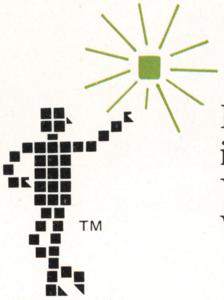
If you want to erase the entire screen, press the CLEAR key.

2. Make sure your screen is "clear" before starting a new activity.



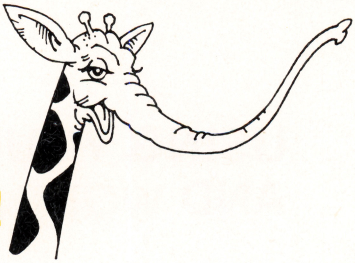
USING YOUR COMPUTER FOR SPELLING AND WORD ACTIVITIES

1. Only use words that have 8 letters or less.
2. You may type them in on the top line or the bottom line.
3. When you want to change lines, press NEW LINE key.
4. When you want to change a letter, press ◀ or ▶ RIGHT ARROW key until the cursor is to the left of the letter you want changed, then type in new letter or space key—it will automatically replace the old letter.
5. When you want a space between words or letters, press SPACE key.
6. When you want to clear the screen, press CLEAR



REMEMBER, THE CURSOR (blinking square) TELLS YOU WHERE YOUR NEXT LETTER OR SPACE WILL APPEAR.

Now! Let's have some fun and games and learning with words.



MIX UP THE ANIMALS!

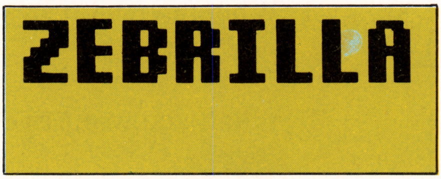
Create your own crazy animal zoo! Pick an animal, match it with another animal and see what funny words you can make.

Type the first few letters or first syllable of one animal. Then add the last syllable or last letters of a second animal.

Remember—your animal can only be 8 letters per line.

EXAMPLE:

ZEBRA + GORILLA = ZEBRILLA
TIGER + ANTELOPE = TILOPE



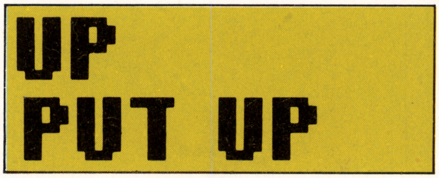
ZEBRILLA

Make up as many animals as you can. Take turns with a friend and see who is the wackiest creator of the most animals. Try mixing these for starters!

ZEBRA
ERMINE
RAT
PARROT
COUGAR
TIGER
LION
DOVE
GORILLA
CHIMP
HIPPO
SHARK
ANTELOPE
ANTEATER

H-2 WORD TOUGHIES FOR WINNERS!

Be sure to clear the screen before starting this one. It will have you putting on your thinking cap!



UP
PUT UP

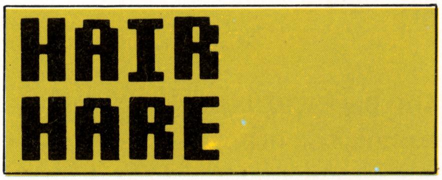
Start with one word. Type this word on the top line. Then see if a friend can make a two-word expression using the word you typed. Type the two-word expression on the bottom line. This word game is harder than you think!

EXAMPLE: UP—PUT UP DOWN—PIPE DOWN

WORD TRICKSTERS FOR SPELLERS

Words that sound alike, but are spelled differently and have different meanings are HOMONYMS.

EXAMPLE:
Hair and Hare.

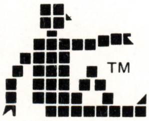


HAIR
HARE

Type one of the homonyms listed below on the top line and see if you or your friend can type a word on the bottom line that sounds the same, but means something different. Keep score!

Give one point for each correctly spelled answer. Be creative—make your own list for super word trickery!

Answers on page 42



"How many points can you get?"

(EASY)

1. by
2. to
3. sea
4. sum
5. one
6. for
7. due
8. meat
9. hear
10. eye

(MEDIUM)

1. plain
2. capitol
3. berth
4. miner
5. coolly
6. serial
7. stare
8. sealing
9. board
10. stake

(HARD)

1. frieze
2. kiln
3. raze
4. caret
5. canon
6. lode
7. martial
8. aisle
9. lesson
10. write
11. mien
12. corps
13. knead
14. presence
15. coarse

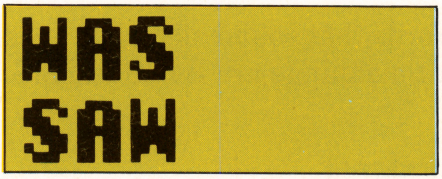
E/H - 2

MAKE SOME BACKWARDS SDROW

This game will help you become a spelling whiz. Think of a word that is a real word even when spelled backwards! Type the word one way on the top line. Let your friend type it backwards on the bottom line.

EXAMPLE:

You type "was" and your friend types "saw."



```
WAS
SAW
```

If the backwards spelling makes a real word, you get one point. If it does not, the other player scores one point. Take turns. You give the other player five words and then let the other player give you five words. The player with the highest score, after each of you takes a turn, wins. Here are some examples you can practice with.

Answers on page 42.

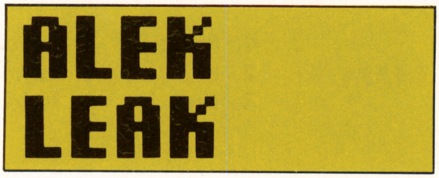
EASY
1. tar
2. pit
3. nap
4. dew
5. now
6. top
7. tub
8. net
9. lap
10. nip

HARDER
1. straw
2. diaper
3. stinker
4. deliver
5. desserts

M-2 SCRAMBLED WORDS FOR BREAKFAST?

Tasty treats for word wizards! You take List A and your friend takes List B. You type one of your scrambled words on the top line and see if your friend can unscramble it and type the answer on the bottom line. It is then your friend's turn to give you a word to unscramble. The winner is the one who can unscramble the most words. You can come up with lists of your own, too. Just pick ten words and scramble up the letters. Remember that your words can be no more than 8 letters long.

EXAMPLE: alek = leak
pcam = camp



```
ALEK
LEAK
```

Answers on page 42.

List A

alek
sirt
dora
beal
isda
royu
mlug
cefa
crie
rbev

List B

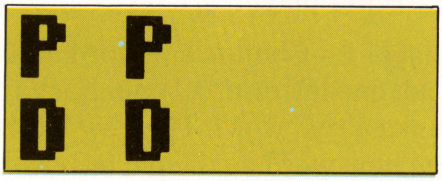
pacm
plac
neop
hals
einn
hhgi
icep
lapn
saml
nwad

WHAT'S A PALINDROME?

Easy. It's a word that is spelled the same forwards and backwards. Any come to mind? How about "noon," "Mom," "Dad." Twelve of the following words are PALINDROMES. Can you see and type the words that are Palindromes? Or better yet, think up your own—put the first and last letter on the screen. Have your friend fill in the blanks.

EXAMPLE:

P_P, D_D.


```
P P
D D
```

Answers on page 42.

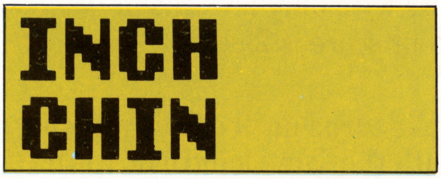
kayak
refer
did
eye
wow
sees
tires
eve
rotor
rotator
civic
ought
deed
laces
radar

TWO WORDS IN ONE FUN

H-1/2

A new word made from another word by rearranging the letters is an ANAGRAM. How fast can you change the letters of the following words into new words? Try these yourself...or try them with a friend. Enter one of these words on the top line, then you or your friend spell a new word out of those same letters on the bottom line. You must use all the letters in the word you start with. Come up with your own words and challenge a friend!

EXAMPLE: inch = chin


```
INCH
CHIN
```

Answers on page 42.

1. stove
2. tablet
3. aside
4. plum
5. ought
6. night
7. license
8. bread
9. ache
10. tide
11. ring
12. liar
13. wrote
14. horse
15. teach

Be sure to turn off your computer when you finish.

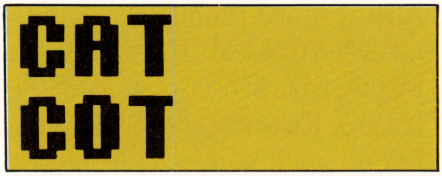
WILY WORD TRANSFORMATIONS

Watch a word change into a brand new word in several steps. It's fun, challenging and a great vocabulary builder, too! 1 or 2 can play.

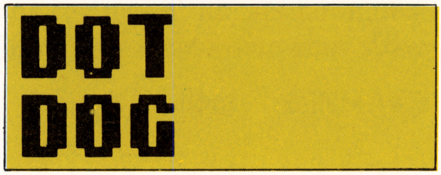
Player 1—Type a 3 or 4 letter word on the top line of the screen. Then think of a second word with the same number of letters but a very different meaning. EXAMPLE: cat and dog, bus and car. Tell the other player to change the first word into the second word.

Player 2—Change the word on the screen into the word you were told, one letter at a time. Each time you change a letter, you must make a real word. The new letter has to occupy the same place in the new word as the old letter did in the old word. Try to get from the starting word to the ending word using as few words as possible in between. Type each new word you create on a different line, starting with the bottom line.

EXAMPLE: Change cat to dog. First change the *a* in cat to *o*. Type *cot* on the bottom line. Then change the *c* in cot to *d*. Type *dot* on the top line. Finally change the *t* in dot to *g*. Type *dog* on the bottom line. You've changed cat to dog with only 2 words in between. Your score is 2.



CAT
COT



DOT
DOG

Take turns until each player has made 5 word transformations. Stay with the same length of words (3 to 4 letters) throughout the game. At the end of the game, add up each player's scores. LOW SCORE WINS.

WORD ENDINGS TO END ALL WORDS!

Here are some words to change:

east to west
boy to man
cold to warm
head to feet
lead to gold
meat to stew
walk to ride
some to many
town to city
nose to toes
beer to wine
shoe to sock
bead to bird
poor to good
hard to soft
sun to sit
lost to home
work to live
seek to well
try to win
work to rest
good to best

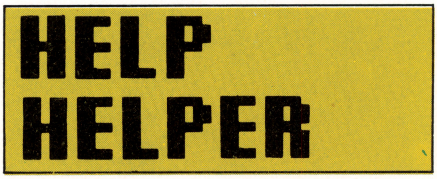
WORD ENDINGS TO END ALL WORDS!

Are you ready to start? Are you in the TYPE MODE? Good. Then let's end some words.

Endings of all shapes and sizes are just waiting to be added to a word to make a new word!

Type a word from the list below on the top line of the screen. Make a new word by adding one or two letters, then type the new word on the bottom line. See how many new words you can make, typing each new word on a different line. If 2 people are playing, take turns.

EXAMPLE: help, helps, helped, helper
take, takes, taken, taker



HELP
HELPER

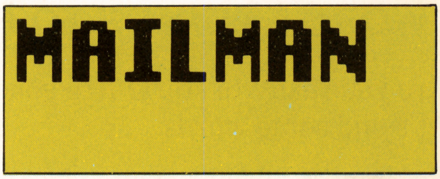
Answers on page 42.

1. jump
2. make
3. play
4. stop
5. grow
6. black
7. brown
8. round
9. small
10. white

MORE THAN ONE WORD WONDERS?

Yes! But you have to really think! Here's how to make one word from two:

Type a word from the left column on the top line of the screen. Have a friend pick the word from the right column that makes a new word when you add it to the first. Type it in next to the first word. If it makes a real word, your friend gets 1 point. If it does not make a real word, you get 1 point. Take turns. When you are through the list, add up each player's points. HIGH SCORE WINS.



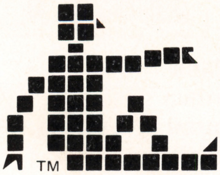
MAILMAN

EXAMPLE: mailman

Answers on page 42.

mail
foot
box
side
snow
air
back

yard
look
man
long
plane
ball
will
keep
car



REMEMBER: PRESS ALL KEYS FIRMLY!

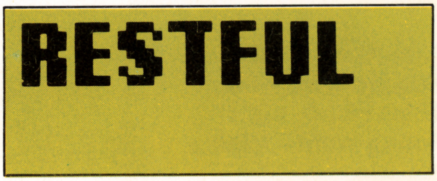
MORE WONDER-ENDINGS!

Read the words and endings below and see how challenging this word game can be! You will find new words in old words and learn some new spelling rules. These endings are just waiting to change a word. Here's how to play:

Type a word from the Words list below. Pick an ending from the Word Endings list and add it to the word to make a new word. Type the new word below the word you started with. See how many new words you can make. Remember! The last part of a word may change in spelling when an ending is added. (EXAMPLE: the *y* in lucky changes to *i* when you add the ending -ly.)

Other ending rules: When a word ends in *e*, drop the last e before adding an ending.

EXAMPLE: ride changes to riding.



RESTFUL

Vowels are a,e,i,o,u and sometimes y. Consonants are all the other letters. Double the last consonant when there is a vowel before the consonant, like mad to madder.

Answers on page 42.

WORDS:

REST
HARM
LIFE
READ
HAPPY
WEARY
ROT
BODY
FUNNY
STOP
STEP
SUNNY
HELP
NOISY

WORD ENDINGS:

-LESS
-FUL
-LIKE
-EN
-ING
-ED
-ER
-LY

VOCABULARY
BUILDING

H - 2

DELICIOUS WORD TOPPING DEFINITIONS!

This word definition game will make you hungry for more definitions. And here's how to play it:

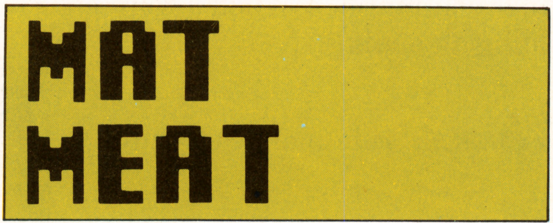
Type a letter on the top line. First player thinks of a *3-letter* word beginning with that letter, types it, and defines it.

Second player must add a letter anywhere in the first player's word, making a new *4 letter* word. Type the new word on the bottom line and define it.

Next player must then type a *5-letter* word using the previous 4 letters, plus 1 more and so on, up to 8 letters. If a player is unable to make and define a new word by adding 1 letter, that player drops out of the game.

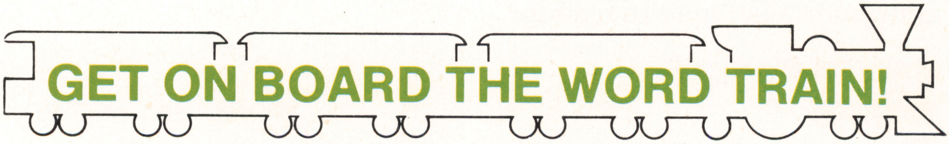
EXAMPLE: LETTER–M

First Word—Mat
Second Word—Meat
Third Word—Metal
Fourth Word—Metals



MAT
MEAT

Try to top your own word toppings!



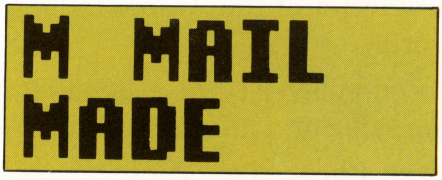
M/H-2 GET ON BOARD THE WORD TRAIN!

This is a fun word association game that can be as easy or as hard as you want. Here's how you play:

First player types a letter on the top line. Next player types a word beginning with that letter. The next player types a different word, beginning with the same letter, on the bottom line. Keep typing new words beginning with the letter until no one can think of another word.

(Try letter "X" for really tough words!)

EXAMPLE: M, Mail, Made, Mars, More, Moment



M MAIL
MADE

Try it another way. Type a letter, then take turns typing new words that start with that letter. Each new word must have one more letter in it than the word before.

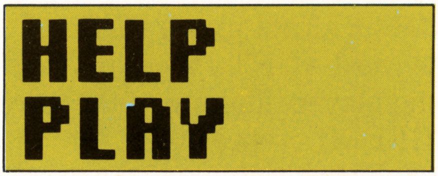
EXAMPLE: N, No, Not, Nice, Notes, Narrow

START A CHAIN REACTION ACTION!

This is a challenging word chain reaction any number can play. The object is to keep the word chain going for as long as possible. Here's how it is played:

You type a word on the top line and the next player begins his or her word with the last letter of the first word and types it on the bottom line. Each player types a new word beginning with the last letter in the word before. Alternate typing words on the top and bottom lines.

EXAMPLE: Hel*p* *P*la*y* *Y*e*s* *S*mar*t* *T*on*e* *E*as*y* *Y*ea*h* *H*one*y*



HELP
PLAY

To make this game tougher, pick categories that will really make you think, like insects, sports, famous people, cars, rivers, geography, cities. What's your favorite subject?

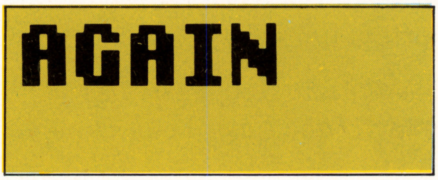
VOCABULARY BUILDING
H - 2+

IT'S NOT EVEN CLOSE GHOST!

The object of this game is to second-guess your friends and make them drop out of the game. Any number of people can play.

1. First player thinks of a word from 3-8 letters, then types in the first letter of that word on the top line. (Don't tell anyone your word!)
2. Second player types a second letter next to the first, thinking of the same or a different word.
3. Each other player thinks of a word that begins with the letter or letters already typed and adds one letter.
4. If a player can't think of a word or ends a word with the letter he/she types in, the player gets a letter in the word GHOST.

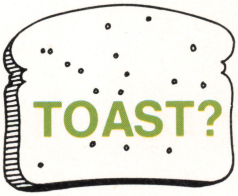
   If a player adds a letter and is challenged by any other player, he/she must say the word he/she was thinking of. If a player does not have a real word in mind when challenged, that player gets a letter in the word GHOST. If a player answers with a real word when challenged, then the challenger gets a letter in the word GHOST.
5. After 5 misses, the entire word GHOST is spelled and that player must drop out of the game. Keep score on a separate sheet of paper. Play until there is only one person without the word GHOST completely spelled.



AGAIN

EXAMPLE: First player thinks of the word AUNT—types in A
Second player thinking of the word AGREED—types in G
Third player thinking of the word AGATE—types in A
Fourth player thinking of the word AGAINST—types in I
Fifth player cannot think of any word, or types N—ending a word—that player gets a "G" toward GHOST.

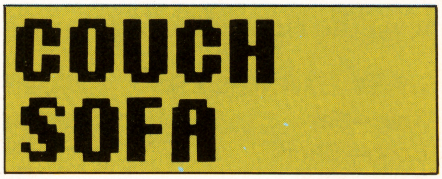
EVER TRY SYNONYM TOAST?



It's yummy and easy to learn. You'll find yourself learning more and more about different words!

A synonym is a word that has almost the same meaning as another word.

EXAMPLE: couch and sofa.



COUCH
SOFA

Type a word from the right column on the top line and try to match it with its synonym in the left column. Type that word on the bottom line. A point is scored for every synonym guessed right. Make up your own list and challenge a friend.

Answers on page 43.

1. help	large
2. thin	chubby
3. fat	start
4. small	bear
5. big	slender
6. tidy	tiny
7. beginning	neat
8. carry	earth
9. world	seize
10. take	aid

ANTONYMS

E/M-2

CAN YOU GUESS AUNTIE NYMS? ANTONYMS?

Antonyms are words that have opposite meanings—for example, hot and cold. In this game, two or more players try to see who can "stump" the others on words that have opposite meanings. Type in a word on the top line. The other player must type in its opposite on the bottom line. If that player fails, there are no points. If that player knows the right opposite, score one point.

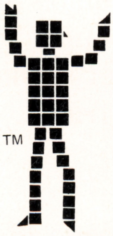
EASY EXAMPLES:

Thin—Fat
Long—Short
Big—Little
Black—White
Dark—Sunny

HARDER EXAMPLES:

Frail—Strong
Past—Future
Quench—Ignite

Think of as many opposites as you can!



"Very interesting. Category activities are important to our thinking. They help us to see how we organize our experiences, and to see that there is order in our universe."

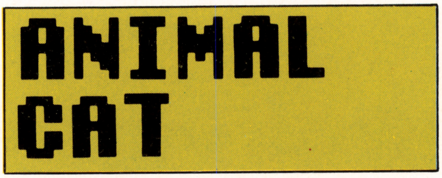
M-2 THESE ARE TOUGH WORD CATEGORIES!

Be sure to clear the screen first. Any category will do when you play this game—but look out, it's harder than you think! Pick a category, any category. Type it on the top line. Then take turns typing something in that category on the bottom line. Keep going until one player can't think of anything else in that category. The last player to type a word in the category wins that category round. Go on to another category.

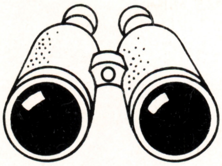
EXAMPLE:

ANIMAL—CAT, DOG,
MONKEY, COW

RIVERS—AMAZON, TIBER
COLORADO, AMERICAN,



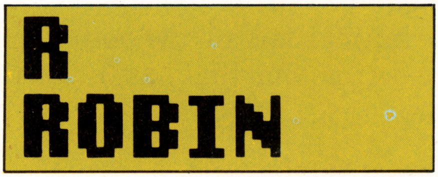
ANIMAL
CAT



WATCHING WORD MATCHING!

First choose a category such as automobiles, TV programs, cities or flowers. Then type one of these letters—C, H, A, M, F, R, on the top line.
Next player must type a word that begins with the letter you typed and is within the category.

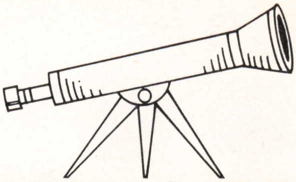
EXAMPLE:



```
R
ROBIN
```

You pick a category such as BIRDS
You type in the letter R.
Your friend must type in a word that relates to birds and begins with R—like ROBIN. Your friend can then type in one of the letters above for you, either in the same category or in a new category.
Now it's your turn to type in a word, in the category and beginning with the letter your friend typed. You can keep score by seeing who can think of the most words that relate to the category.

DON'T FORGET TO TURN YOUR COMPUTER OFF!



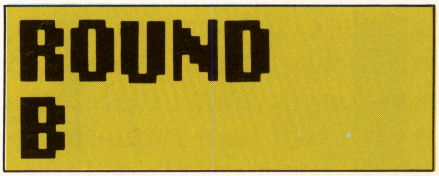
HOW TO BE A WAY OUT THINKER! IT'S HARD.

In addition to their dictionary meanings, many words have what we call *inherent* meanings. The inherent meaning of a word usually describes some quality that we just naturally think of when we think of that word. For example: when we think of the word *ball*, we naturally think of the quality of *roundness*. Roundness is an inherent meaning of ball.

Each of the initial letters below begins a word that has an inherent meaning. Type in the inherent meaning word on the top line and the initial letter on the bottom line. See if you can finish the word on the bottom line that has the inherent meaning you typed on the top line.

Answers on page 43.

EXAMPLE: Find a word that starts with b and has the inherent meaning of round.



ROUND
B

Initial Letters	Inherent Meaning	New Word
b	round	ball
gh	fear	ghost
wr	twisting	wring

Try these toughies:

gl	light	
cr	noise	
tr	travel	
b	babies	
sl	wet	
sl	thin	
sh	smaller	

Now make up your own.

TYPE THE BETTER LETTER!

What follows what or things in a row is the meaning of sequence.

Learn the alphabet sequence. This is a game where no one talks. Here's how to play:

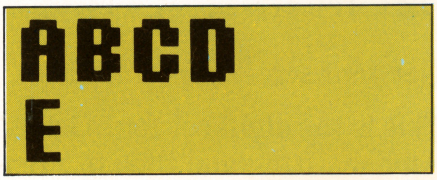
You type the alphabet sequence provided on the top line; the other player types the next letter in the sequence on the bottom line.

The important part about the game is that you cannot tell the other player anything more than what you type.

You can even play this game by yourself.

Answers on page 43.

EXAMPLE:
You type on the top line ABCD___.
The other player types the answer E on the bottom line, because it is next in sequence.



ABCD
E

Make up your own sequences of letters after you have mastered the ones below!

(EASY)

1. EFGH___
2. MNOP___
3. RSTU___
4. EDCB___
5. NMLK___

(MEDIUM)

1. ACEG___
2. LNPR___
3. RTV___
4. ADGJ___
5. NQTW___

(HARD)

1. ABC BCD CD___
2. EFG FGH GH ___
3. HIJ IJK JK___
4. CDE DEF ___ ___ ___
5. LMN MNO ___ ___ ___

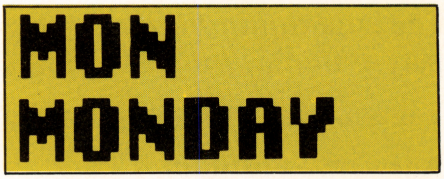
AROUND-THE-WORLD

READY TO PLAY ABBREVIATIONS?

To make a long word short, play the abbreviation game.

On one line, type the abbreviation. On the other line type the answer. Here are some starting abbreviations—can you think of others?

Answers on page 43.



MON
MONDAY

1. **Mon.**
2. **bldg.**
3. **lb.**
4. **kg.**
5. **1.**
6. **bxs.**
7. **Ger.**
8. **lat.**
9. **Mr.**
10. **qts.**

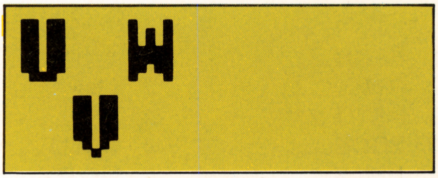
E-2 BEGINNING ALPHABETIZING!

Get your screen nice and clean.

This is the alphabet for starters who will soon move to Next Step Alphabetizing and then to Advanced Alphabetizing.

Beginning alphabet sequences are the subject—one or two players may take turns filling in the correct answer.

EXAMPLE:
One player types U—W. Other player types in the missing letter V.



U W
V

Answers on page 43.

(EASY)

1. **A _ C**
2. **B C _**
3. **C _ _**
4. **_ _ C**
5. **D _ F**
6. **E F _**
7. **F _ _**
8. **_ _ H**
9. **G _ I**
10. **J K _**
11. **L _ _**
12. **_ _ K**
13. **J_L**
14. **L M _**
15. **O _ _**
16. **_ _ P**
17. **M _ O**
18. **V W _**
19. **T _ _**
20. **_ _ S**

NEXT STEP ALPHABETIZING!

M-2

(MEDIUM) This is another exercise in sequences and letter association through the alphabet.

Type these sets of letters on the top line one at a time. On the bottom line type the letters in alphabetical order.

Answers on page 43.

EXAMPLE:

QMGP—GMPQ

1. **PTVR**
2. **DECL**
3. **MTBR**
4. **GONS**
5. **AYUS**
6. **QFDS**
7. **ROZW**
8. **MVUH**
9. **PKEJ**
10. **XLNT**

ADVANCED ALPHABETIZING

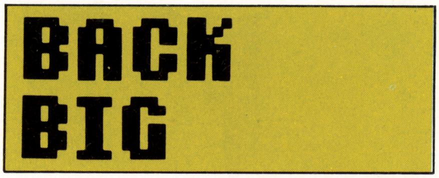
H-2

(HARD) Look at each pair of words below and then type on the top line the word that would come first in the dictionary and type on the bottom line the word that would come next in the dictionary.

Remember—If the first two letters of two words are the same, the third letter tells the position of the words in the dictionary.

EXAMPLE:

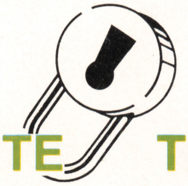
big—back = back—big



BACK
BIG

Answers on page 43.

1. **ant—any**
2. **brim—bridge**
3. **dam—dare**
4. **novel—notify**
5. **skeleton—skipper**
6. **hair—hail**
7. **boggle—bossy**
8. **paint—pair**
9. **shirt—ship**
10. **easy—eater**



COMPLETE THE WORD!

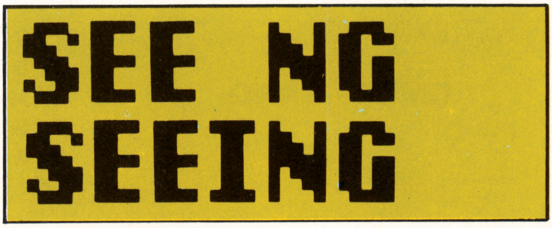
A scoring game with incomplete words is waiting for your correct answer.

Type the following words on the top line, then type the whole word spelled correctly on the bottom line.

Score one point for every correct answer.

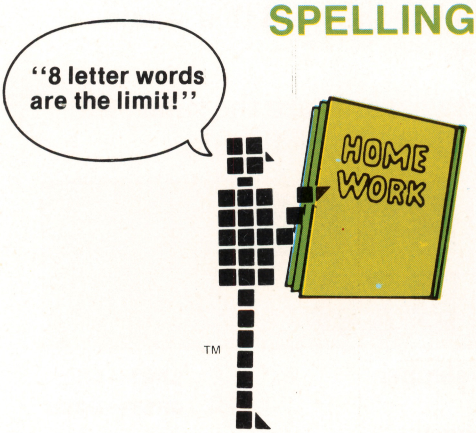
Answers on page 43.

1. **See_ng**
2. **Run_ing**
3. **Lov_d**
4. **W_ole**
5. **The_r**
6. **Ther_**
7. **He_vy**
8. **Wrot_**
9. **Agre_d**
10. **Fi_th**



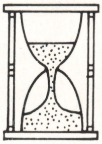
SEE NG
SEEING

SPELLING DRILL MILL!


"8 letter words are the limit!"
HOME WORK
TM

Put your weekly spelling drill through the computer mill!

Ask Mom or Dad or a friend to test you on your weekly spelling list. Have them say the word. You type the correct spelling on your computer, saying the letters out loud as you type them.

ADVANCED QUICK  SWITCH!

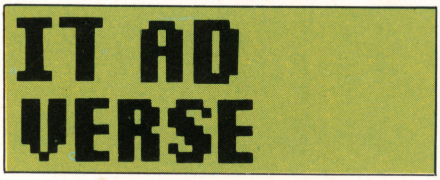
Find as many words as you can in each of the words on the following list. This is a game of word association and spelling. Put on your thinking cap. This game is for real word wizards!

Take turns. Each player will type all of his or her found words. The player with the most words and least number of remaining letters wins. You may use the letters only once when making new words.

After mastering Advanced Quick Switch make your own list.

EXAMPLE: Advertise–it, ad, verse

1. **Hesitate**
2. **Shining**
3. **Dislodge**
4. **Holiday**
5. **Familiar**
6. **Judgment**
7. **Sincerely**
8. **Dismayed**
9. **Peaceful**
10. **Varieties**



IT AD
VERSE

SUBSTITUTE WORDS!

H-2

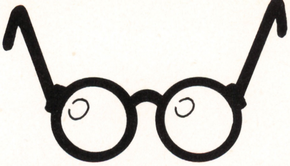
Get ready to go word hunting. This is a word building game that two can play. Just watch your vocabulary grow!

The first player types a word on the top line. The next player types a substitute word on the next line that is similar, but slightly changes the feeling of what the first word describes.

Take turns. The last one to type an acceptable substitute word is the winner!

EXAMPLE:

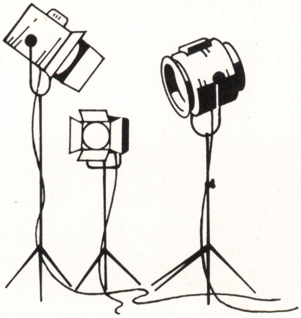
FIRST WORD–Ask
SUBSTITUTE WORDS–Plead, beg, want, request



LIGHTS! CAMERA! ACTION WORDS!

Get into this word association game and your vocabulary will never be the same. Here's how to play:

Type a category word, such as planes, cars, people, on the top line. Then type an action word on the bottom line that would go with the category word. The player who can continue thinking of and typing the most words in any category is the winner!



EXAMPLE:

Planes: land, fly, soar, glide, turn

Cars: race, zoom, speed, pass, turn, park

Insects: crawl, slither, fly, swim, hop, wiggle

Horses: tramp, gallop, trot, walk, step, buck, race

H-1/2 SUBJECT FUEL AND WORD DUEL!

A duel of words for the best vocabulary and sentence structure. Choose a category such as weather, clothing, gardens, tools. One player types the name of something within the category on the first line. Next player types a verb that describes what the first word does. This goes on the bottom line.

The player who can't think of a word within the category or can't think of a descriptive verb loses.

EXAMPLE:

Category: Weather

Name:	Hail	Snow	Rain	Wind
Verb:	bounces	swirls	batters	whistles

SMILE! YOU KNOW SIMILES!

A simile is a descriptive comparison using the word "as." Similes make writing more creative and more fun.

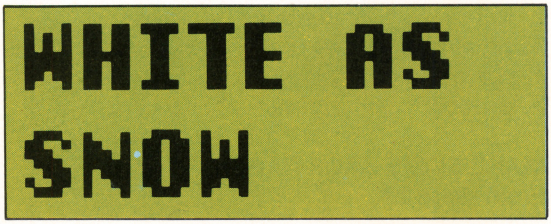
Here's how to play the similes game:

First player types an incomplete phrase on the top line.

White as _____, Blue as _____, Cold as _____, Dark as _____

The next player types a completing word on the bottom line to make this descriptive phrase a simile. A player is out of the game if he or she cannot complete the phrase.

EXAMPLE: White as *snow*
Cold as *ice*



WHITE AS
SNOW

TM
ANSWERS
ON-NEXT PAGE!

ANSWERS FOR TYPE

WORD TRICKSTERS FOR SPELLERS! From page 21.

(Easy)

1. buy
2. two, too
3. see
4. some
5. won
6. four
7. do
8. meet
9. here
10. I

(Medium)

1. plane
2. capital
3. birth
4. minor
5. coolie
6. cereal
7. stair
8. ceiling
9. bored
10. steak

(Hard)

1. freeze
2. kill
3. raise
4. carrot
5. cannon
6. load
7. marshal
8. isle
9. lessen
10. right
11. mean
12. core
13. need
14. presents
15. course

MAKE SOME BACKWARDS WORDS! From page 22.

(Easy)

1. rat
2. tip
3. pan
4. wed
5. won
6. pot
7. but
8. ten
9. pal
10. pin

(Harder)

1. warts
2. repaid
3. reknits
4. reviled
5. stressed

SCRAMBLED WORDS FOR BREAKFAST? From page 22

List A leak or lake, stir, road, able, said, your, glum, face, rice, verb

List B camp, clap, open, lash, nine, high, epic, plan, slam, dawn or wand

WHAT'S A PALINDROME? From page 23.

kayak
refer
did
eye
wow
sees
eve
rotor
rotator
civic
deed
radar

TWO WORDS IN-ONE FUN! From page 23.

1. votes
2. battle
3. ideas
4. lump
5. tough
6. thing
7. silence
8. beard
9. each
10. tied
11. grin
12. rail
13. tower
14. shore
15. cheat

WORD ENDINGS TO END ALL WORDS! From page 25.

1. jumps, jumped
2. makes
3. plays, played
4. stops
5. grows
6. blacker
7. browner
8. rounder
9. smaller
10. whiter

MORE THAN ONE WORD WONDERS! From page 26.

football
boxcar
sidewalk
snowman
airplane
backyard

MORE WONDER ENDINGS! From page 27.

1. restless, restful
2. harmless, harmful
3. lifelike
4. reader
5. happier, happily
6. wearily, wearier
7. rotted
8. bodylike
9. funnier
10. stopped
11. stepped
12. sunned
13. helped
14. noisily, noisier

MODE ACTIVITIES

EVER TRY SYNONYM TOAST?

From page 31.

1. aid
2. slender
3. chubby
4. tiny
5. large
6. neat
7. start
8. hold
9. earth
10. seize

HOW TO BE A WAY OUT THINKER! From page 34.

gleam, glow
creak
train
bottle
sludge
slice
shrink

TYPE THE BETTER LETTER!

From page 35.

(Easy)	(Medium)	(Hard)
1. I	1. I	1. E
2. Q	2. T	2. I
3. V	3. C	3. L
4. A	4. M	4. EFT
5. J	5. Z	5. NOP

READY TO PLAY AROUND THE WORLD ABBREVIATIONS?

From page 36.

1. Monday
2. building
3. pound
4. kilogram
5. liter
6. boxes
7. German, Germany
8. latitude
9. mister
10. quarts

BEGINNING ALPHABETIZING!

From page 36.

1. B
2. D
3. D E
4. A B
5. E
6. G
7. G H
8. F G
9. H
10. L
11. M N
12. I J
13. K
14. N
15. P Q
16. N O
17. N
18. X
19. U V
20. Q R

NEXT STEP ALPHABETIZING!

From page 37.

1. PRTV
2. CDEL
3. BMRT
4. GNOS
5. ASUY
6. DFQS
7. ORWZ
8. HMUV
9. EJKP
10. LNTX

ADVANCED ALPHABETIZING!

From page 37.

1. ant–any
2. bridge–brim
3. dam-dare
4. notify–novel
5. skeleton–skipper
6. hail–hair
7. boggle–bossy
8. paint–pair
9. ship–shirt
10. easy–eater

COMPLETE THE WORD!

From page 38.

1. i
2. n
3. e
4. h
5. i
6. e
7. a
8. e
9. e
10. f

Music through THE CHILDREN'S DISCOVERY SYSTEM™ computer is a unique and exciting learning adventure. It offers the double delight of seeing a note appear on the screen while hearing that note. It gives your child an opportunity to create his or her own songs, hear them played back and even mix up the notes for original new versions. Games and activities encompass high and low octaves, major and minor keys, and other musical concepts that will help your child develop listening skills. The computer keyboard is structured to relate to the keyboard of a piano or organ so your child can make the transition from computer to these musical instruments with ease. There are music definitions to use as a starting point for further music discoveries. Musical phrasing, beats and counts, rhythm and timing—all combine to make learning music fun. It is music that marches to a very special beat—electronics!

MUSIC-MODE

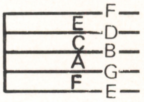
Wave your baton and strike up the band. Your computer plays music at your command.

Create your own rhythm and snap your fingers to the electronic notes. Make up a song and sing along. If you like, the computer will play it back for you. It will even mix up the notes to give you a whole new tune. The keyboard is designed so you can more easily learn to play a piano or organ. The notes you play will appear on the screen, helping you to remember the sounds. Your computer has more musical doings. Use it with the activities in this section to learn some basic musical facts. You will learn new music words, new rhythms, new songs, new music games, and new ways to play for fun. It's computer music to your ears.

Are you ready
to play a tune?

SOME MUSICAL TERMS

1. STAFF

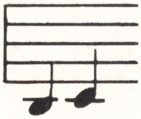


The **staff** consists of five lines and the four spaces between the lines. The lines are named E, G, B, D, F (remember–Every Good Boy Does Fine); the spaces are F, A, C, E (remember FACE).

2. NOTES

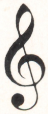
Symbols that indicate tone or pitch. If a note is placed on the E staff line, the note is also named E. If a note is placed in the F staff space, the note is named F. Sometimes notes appear above or below the staff.

3. LEDGER LINE



These are the short lines used for certain notes that go below or above the staff. The first A, B, C and D on your keyboard are below the staff. G^2 is above the staff.

4. TREBLE CLEF SIGN



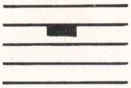
This musical symbol tells a musician that the notes on the staff are high notes–usually middle C or higher.

5. OCTAVE

The word **"octave"** is a musical word that comes from the Latin word meaning "eight." On your computer keyboard, the two keys with the same letter name, A and A^2, and B and B^2, etc., are an **"octave"** apart.

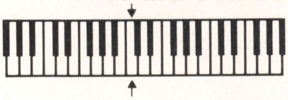
If you count the notes or keys on your keyboard from the low A to the higher A, you will count to 8. If you count from the low B to the higher B, you'll also count to 8.

6. REST

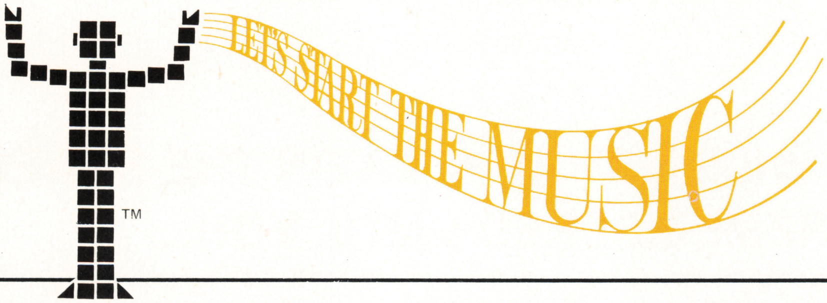


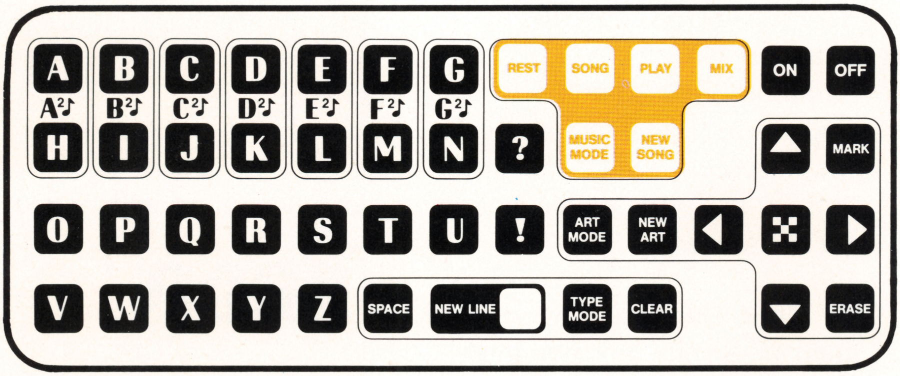
No musical tone is heard when rest is pressed. The **rest** is a sign of silence, a **"non-note".** Rests are used to make spaces between notes.

7. MIDDLE C



On a piano, this key is in the middle of the keyboard–just below the brand name. The C note in the first row of keys on your computer is Middle C.


TM
LET'S START THE MUSIC


A
B
C
D
E
F
G
A²♪
B²♪
C²♪
D²♪
E²♪
F²♪
G²♪
H
I
J
K
L
M
N
?
O
P
Q
R
S
T
U
!
V
W
X
Y
Z
REST
SONG
PLAY
MIX
MUSIC MODE
NEW SONG
ON
OFF
MARK
ART MODE
NEW ART
SPACE
NEW LINE
TYPE MODE
CLEAR
ERASE

The Music Mode keys are marked in yellow on your keyboard. Use only the top two lines on your letter keyboard. The LEFT and RIGHT ARROW keys are also part of the Music Mode.

LET'S START THE MUSIC!

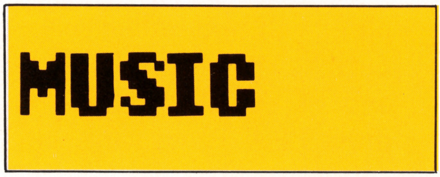
ON

1. Press the ON key. You will see CURSOR THE GREAT™ run across the screen. The question, MODE? will appear.

MODE?

MUSIC MODE

2. Answer by firmly pressing MUSIC MODE key. The word MUSIC will appear. While the word MUSIC is on your screen, you may play your keyboard. Play any notes you want now and hear how they sound.

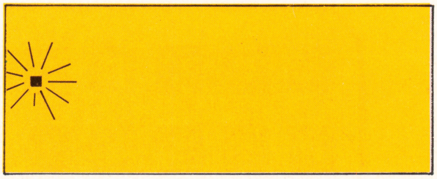


MUSIC

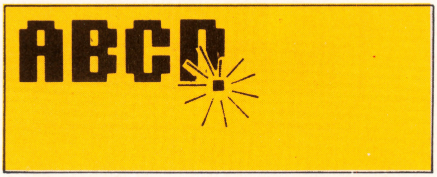
NOTES WILL NOT APPEAR ON THE SCREEN OR BE REMEMBERED UNTIL YOU...

SONG

1. Press SONG key. Right after pressing SONG key, a small blinking square will appear on the left side of your blank screen. This is called the cursor. The cursor tells you where your next note will appear on the screen.

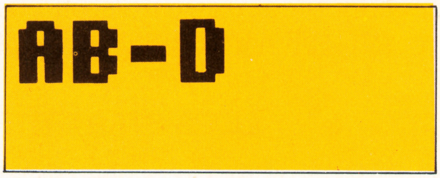


2. Press the notes you want to hear (use your index finger). They will appear on the screen.



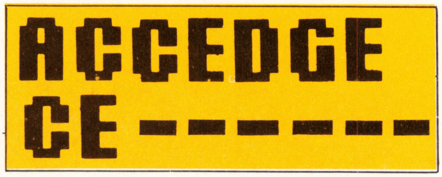
REST

3. When you want a pause in your song, press REST key. A rest bar will appear in that space on the SCREEN. You can enter a total of 16 notes or rests. If you enter in fewer than 16 notes or rests, your computer will automatically fill the rest of the screen with rest bars when you press PLAY or MIX.

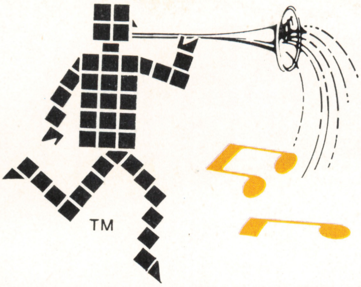


PLAY

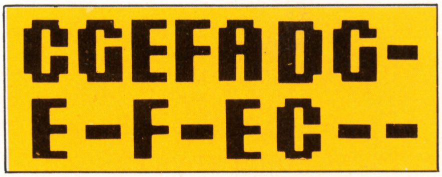
4. Press PLAY to hear the song you entered in. Your computer will remember your song until you press the NEW SONG or MIX key. As long as you press PLAY your song will repeat.



Your computer will remember only the last 16 notes of any song, as they appear on your screen, even though you can play longer than 16 notes.

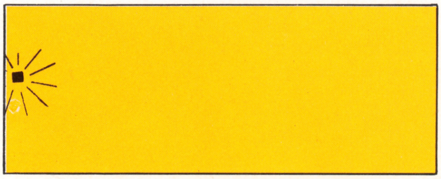


MIX



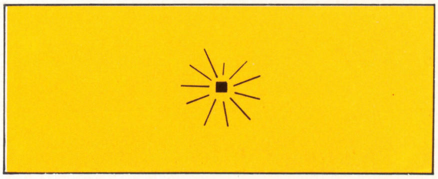
5. Press MIX to scramble the 16 notes and rests in your song. Hear a new version of your tune. As long as you keep pressing MIX you will hear almost endless musical variations. Once you press MIX, you cannot go back to your original song until you enter it again. So if you like a song, write down the notes to use in the future.

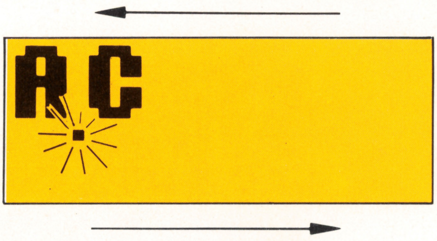
NEW SONG



6. Press NEW SONG to clear the screen and your computer's memory completely. Your computer is now ready for you to enter a new song.

SOMETHING ABOUT THE BLINKING CURSOR





You can move the cursor to where you want to change a note or rest.

◀ ▶

Firmly press LEFT or RIGHT ARROW keys. Each time you press, you will hear a BEEP and the cursor will move one space. When the cursor is to the lower left of the note you want to change, press the new note or rest.

PLAYING MUSIC

In MUSIC MODE, the keys A through N play 14 different musical tones, called "notes".

Play each of the 14 keys starting with A and ending with N. Listen to each tone as you play it. Did you notice the tones kept getting higher? This is an **ascending** musical scale.

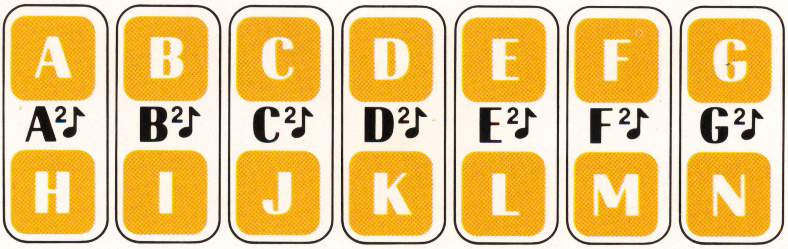
Play each key starting with N and ending with A and listen. The downward sound is a **descending** musical scale.

ABCDEFG

GFEDCBA

THE MUSICAL ALPHABET

The first 7 letters of the alphabet, A through G, are used to name all notes. These are the 7 keys in the top row of the keyboard.



Let's play a Song

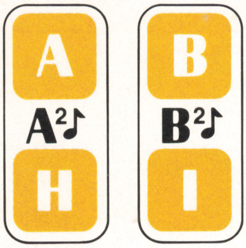
It's easy to play a song even if you've never tried before. Play this song – you're sure to know it:

E D C D E E E ▬
D D D ▬ E G G ▬
E D C D E E E E
D D E D C

The notes you play with the second row of keys – H through N – have the same **musical** names as the top row of keys. To help you tell the difference between the two sets of notes, we call the notes in the second row A^2; B^2; C^2; etc. These letters are shown **between** the top and second rows. So when you press H, you are playing note A^2; I is B^2; J is C^2 and so on.

Play A then Play A^2 and listen to their tones . . .

The two tones sound alike except A^2 sounds higher.



Play B then Play B^2 and listen. . .

Again, the two tones sound alike except B^2 is higher.

Play this song

E^2 D^2 C^2 D^2 E^2 E^2 E^2 ▬
D^2 D^2 D^2 ▬ E^2 G^2 G^2 ▬
E^2 D^2 C^2 D^2 E^2 E^2 E^2 E^2
D^2 D^2 E^2 D^2 C^2

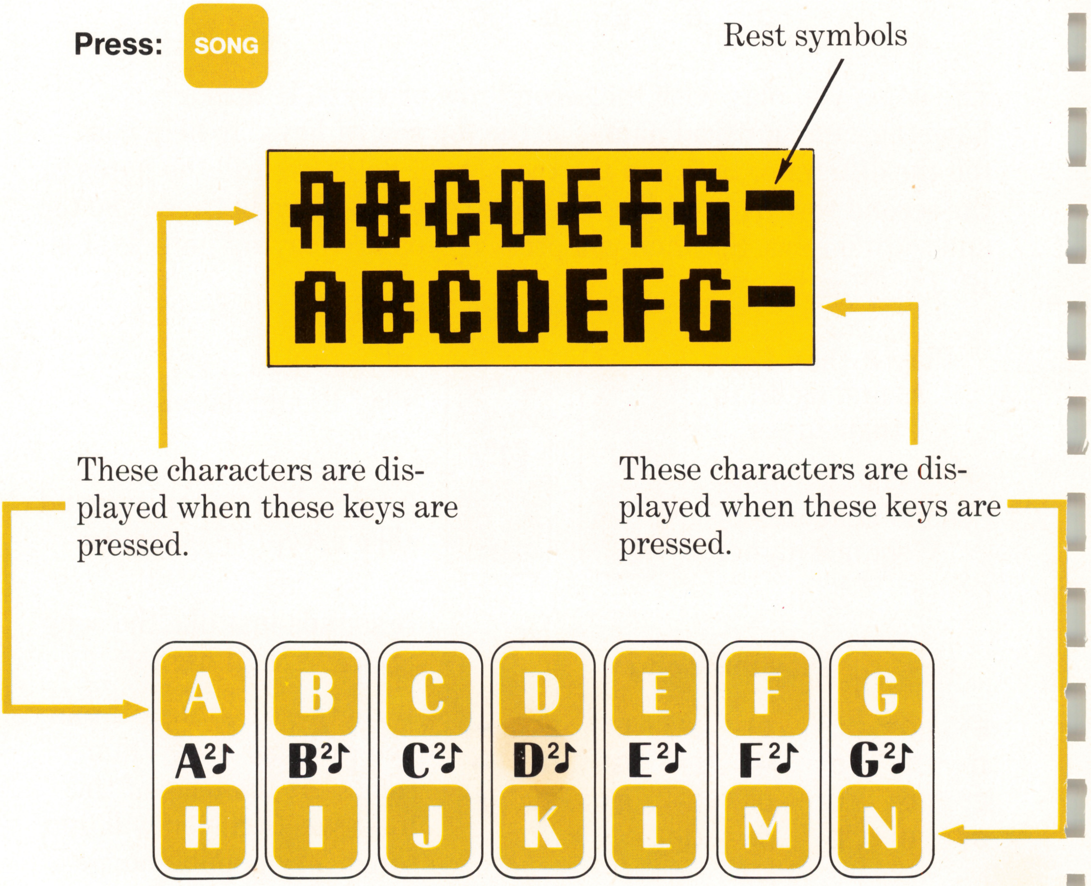
It sounds just like the song above, except **higher.**

With these 14 musical tones, you can play many, many songs. At the back of this music section, you will find some very popular songs. Play the ones you like.

DISPLAYING NOTES ON THE SCREEN

Remember the letters on the bottom are the notes A^2-G^2 shown below. Your new computer plays real music. The picture shows the computer's 14 notes written on a music STAFF and the corresponding piano or organ keys.

Press: SONG


ABCDEFG-
ABCDEFG-
A B C D E F G
A² B² C² D² E² F² G²
H I J K L M N

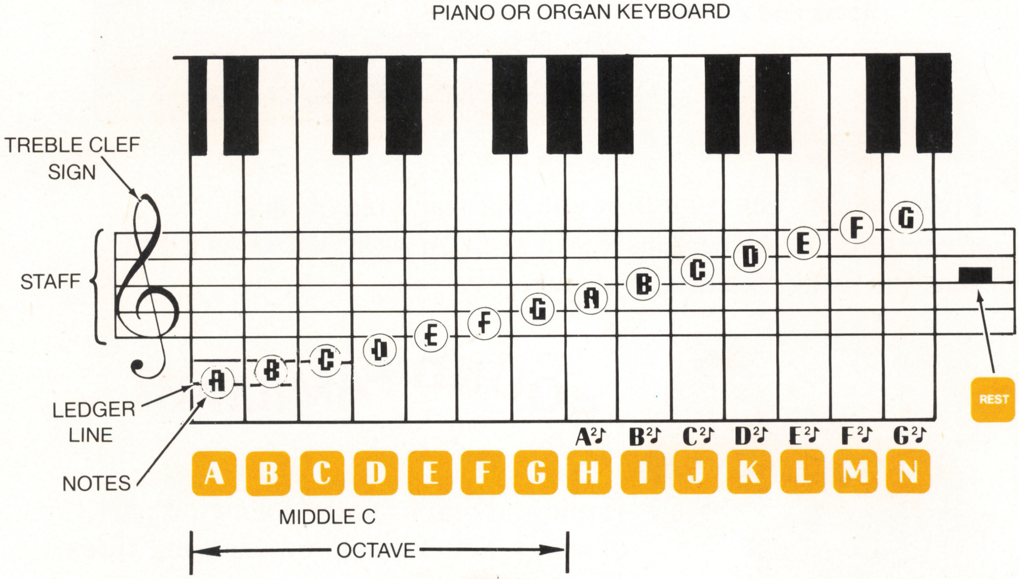
Rest symbols

These characters are displayed when these keys are pressed.

These characters are displayed when these keys are pressed.

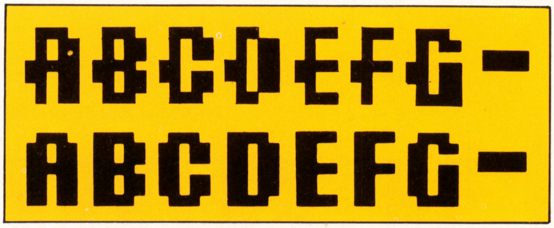
KEYBOARD CONFUSION?

No! It's easy when you read it all.


PIANO OR ORGAN KEYBOARD
TREBLE CLEF SIGN
STAFF
LEDGER LINE
NOTES
A
B
C
D
E
F
G
A
B
C
D
E
F
G
REST
A²♪
B²♪
C²♪
D²♪
E²♪
F²♪
G²♪
A
B
C
D
E
F
G
H
I
J
K
L
M
N
MIDDLE C
OCTAVE

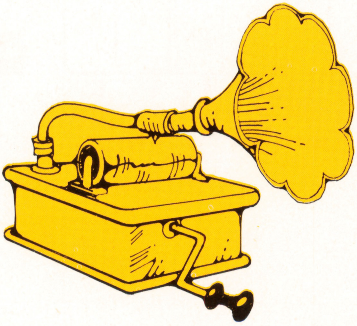
THE COMPUTER PLAYS SONGS

Display these 14 notes and 2 rests



ABCDEFG-
ABCDEFG-

Press: PLAY The computer automatically plays back everything on the screen. If you keep pressing PLAY you will hear the same 16 notes over and over.



SOUND FAMILIAR?

Input and playback the following parts of songs. See if you know the song titles. Press PLAY after entering each song. To go to the next song, press NEW SONG, press the new notes, then press PLAY to hear it. **Don't peek at the answers until you have tried to name all the songs.**

Answers on page 68.

THE GUESSING GAME?

Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Write title here—Answers are on page 68.
1	C^2	C^2	B^2	B^2	A^2	A^2	G	G	C	D							
2	G	G	A^2	▬	G	▬	C^2	▬	B^2								
3	C^2	C^2	D^2	E^2	C^2	E^2	D^2	G	C^2	C^2	D^2	E^2	C^2	▬	B^2		
4	C	C	D	B	▬	▬	C	D	▬	E	E	F	E	▬	D	C	
5	E	E	E	▬	E	E	E	▬	E	G	C	D	E				
6	E	G	G	E	A^2	▬	▬	G	G	▬	▬	▬	E	F	E	D	
7	E	▬	▬	▬	▬	E	F	E	E	▬	▬	▬	D				
8	G^2	A^2	C^2	C^2	C^2	C^2	A^2	G	E	G	C^2						
9	G	▬	▬	D	G	D	G	A^2	B^2	▬	▬	▬	G				
10	D	D	G	▬	D^2	▬	C^2	B^2	A^2	G^2	▬	D^2	▬	C^2	B^2	A^2	

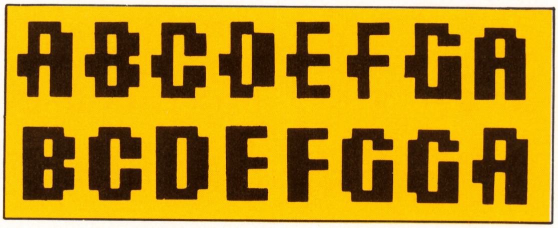
Play "Musical Guessing Games" with your family and friends. Input and play back a melody and let them guess the title. Try this with other songs in this section, too.

MUSICAL WORD GAME

Here's a game of musical fun to play with your friends and family. Try to identify words made out of the letter names of notes. Any number of people can play.

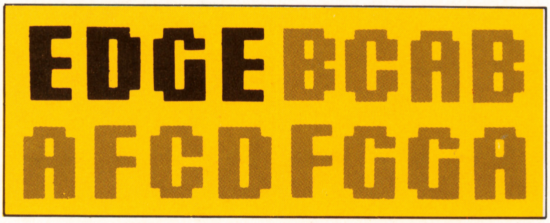
TO START—Input all 14 notes from A to G^2 Input 2 more notes (your choice) so that all 16 positions on the screen are filled.

TO PLAY—
Each player takes a turn pushing MIX



ABCDEFGA
BCDEFGGA

For each word that the player can identify on the screen, he gets 1 point. (More than one word could appear.) Each player gets 10 turns.



EDGEBCAB
AFCDFGGA

THE WINNER—Whoever has the most points after 10 turns.

Musical words that may appear: BE • FA • ABE • ACE • ADD • AGE • BAD • BAG • BED • BEE • BEG • CAB • CAD • DAB • DAD • EBB • EGG • FAD • FAG (tired!) • FEE • GAB • GAD • GAG • GEE • ABBA (music group) • BABE • BEAD • BEEF • CAFE • CAGE • DEAD • DEAF • DEED • EDGE • EGAD • FACE • FADE • FEED • GAFF • GAGA • GAGE (type of plum) • ABACA (Manila hemp) • BADGE • DECADE • DEFACE • FACADE • BAGGAGE • CABBAGE

THE PULSE OF MUSIC

Playing the correct notes is only one part of a song. Another important part is its basic **"rhythmic feeling".** This is what makes you want to tap your foot or fingers, or "get up and dance" when you hear a song you like.

Tapping your foot or fingers along with a song is done in an **even and steady manner.** If you feel your pulse, you will notice it is also even and steady. The "feeling" you get from a song is its "musical **pulse.**"

Your computer also plays back notes with a "musical pulse". If you input 16 notes and play it back, you'll hear all 16 played in an even and steady manner. Many times, however, melodies are not played evenly—there may be pauses or spaces between notes. These spaces add interest to a melody so that everything doesn't "sound" the same.

Input and play back the melody shown below. As the computer plays it back, sing the words.

G A^2 G F E F G

Lon - don bridge is fall - ing down,

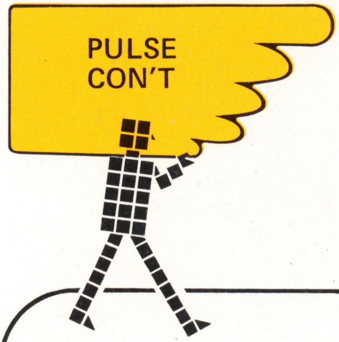
D E F E F G

Fall - ing down, fall - ing down,

It didn't sound right, did it! Each time you sang the word "down," you wanted to pause and not sing the next word right away.

Input the song again. This time press REST after the word "down," each time you see it. Now play back and sing London Bridge. Say the word "rest" wherever you put a rest in.

CON'T ON NEXT PAGE



G A^2 G F E F G ▬

Lon - don bridge is fall - ing down, REST

D E F ▬ E F G ▬

Fall - ing down REST Fall - ing down REST

Sounds better, doesn't it! The rests added **spaces** after the word "down" to make the song sound right.

Did you notice that even though the computer did not play a note each time you said the word "rest," the "pulse" of the song kept going in an even and steady manner?

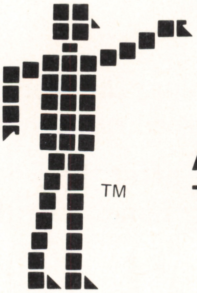
Do the rest of the song the same way.

G A^2 G F E F G ▬

Lon - don bridge is fall - ing down, REST

D ▬ G ▬ E C ▬ ▬

My REST fair REST la - dy REST REST



**ARE YOU REMEMBERING
TO PRESS KEYS FIRMLY?**

13 SONGS TO TRY YOUR EAR

Following are 13 song examples. See if you can make them sound right by adding rests in the correct places.

1. Sing the words or hum each melody as you play the notes and try to determine where the rests should go.

2. Write the notes and rests in the spaces provided beside each song. HELPFUL HINT: Each line in the chart below has 8 places for notes and rests. If there are 4 notes, you will need 4 rests; if there are 6 notes, you will need 2 rests.

NOTES + RESTS = 8 per line

3. Enter and playback each input (16 notes and rests). If it sounds correct to you, go on to the next example. DON'T FORGET – If you want to change something, use LEFT ARROW or RIGHT ARROW.

Check your answers with those on pages 69 and 70.

1. WHEN THE SAINTS GO MARCHING IN

C E F G
1st Oh, when the saints
input C E F G
go march - ing in
C E F G
2nd Oh, when the saints
input E C E D
go march - ing in

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

2. MARIANNE

1st E G C E
input All day, all night
E D F
Mar - i anne
2nd D F F B D
input Down by the sea - side
D C E
Sift - ing sand

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

3. MICHAEL, ROW THE BOAT ASHORE

1st C E G E G A^2 G
input Mi - chael, row the boat a - shore
E G A^2 G
Hal - le - lu - jah
2nd E G G E F E D
input Mi - chael, row the boat a -shore
C D E D C
Hal - le - lu - jah

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

4. CAMPTOWN RACES

1st G G E G A^2 G E
input Camp - town la - dies sing this song,
E D E D
Doo - dah! Doo - dah!
2nd G G E G A^2 G E
input Camp - town race-track's five miles long
D E D C
Oh! Doo - dah day!

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

5. LONG, LONG AGO

1st C C D E E F
input Tell me the tales that to
G A^2 G E
me were so dear,
2nd G F E D
input long, long a - go
F E D C
long, long a - go

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

6. GOOD NIGHT LADIES

1st E^2 C^2 G C^2
input Good - night, la -dies
E^2 C^2 D^2 D^2
Good - night, la -dies
2nd E^2 C^2 F^2 F^2 F^2
input Good - night, la -dies! We're
E^2 E^2 D^2 D^2 C^2
going to leave you now.

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

7. SING A SONG OF SIXPENCE

1st G A^2 G E C C^2 C^2
input Sing a song of six - pence, a
B^2 B^2 D E F
pock - et full of rye,
2nd F G F D B A^2
input four and twen - ty black birds
G C D E
baked in a pie

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

8. YANKEE DOODLE BOY

1st A^2 G G F E F
input I'm a Yan - kee doo - dle
G D G
dan - dy, a
2nd G A^2 G E D C
input Yan - kee doo - dle, do or
F
die.

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

9. OLD MACDONALD

1st F F F C D D C
input Old Mac - don - ald had a farm,
A^2 A^2 G G F C
ee - igh, ee - igh, oh! And
2nd F F F C D D C
input on that farm he had some chicks,
A^2 A^2 G G F
ee - igh, ee - igh, oh!

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

10. THE CAISSONS GO ROLLING ALONG

1st G E G G E G
input O - ver hill, o - ver dale,
G E G A^2 G E G
We have hit the dust - y trail
2nd E F G F D G F
input and the cais - sons go roll - ing
D C
a - long.

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

11. THE MARINE'S HYMN

1st C E G G G
input From the halls of Mon-
G G C^2 G
te - zu - ma,
2nd E F G G F D
input to the shores of Trip - o -
C
li.

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

12. AMERICA, THE BEAUTIFUL

1st G G E E
input O beau - ti - ful
G G D D
for spa - cious skies,
2nd E F G A^2
input for am - ber waves
B^2 G
of grain.

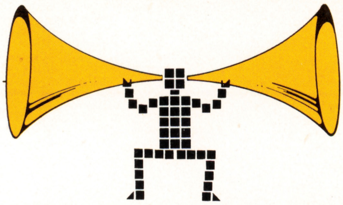
INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

13. ALOUETTE

1st G A^2 B^2 B^2
input A - lou - et - te,
A^2 G A^2 B^2 G E
gen - tle a - lou - et - te
2nd G A^2 B^2 B^2
input a - lou - et - te.
A^2 G A^2 B^2 G
je te plu - me -rai.

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

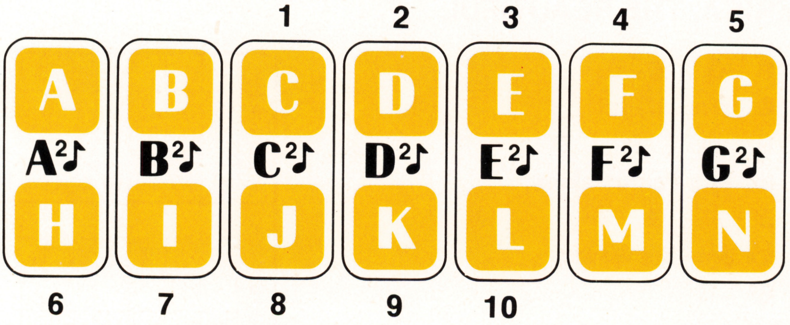
Answers on pages 69 and 70.



MUSIC AND YOUR EARS

Because music is made up of different sounds and tones, you can learn to recognize many things just by listening. You have already done some of this just by singing, whistling or humming a song—you have learned to reproduce the different notes in their proper order.

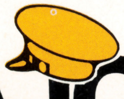
What you have actually done is to reproduce **intervals**, or the distance between various sounds. You have already learned about one kind of interval, the **octave**. The two notes in an octave are 8 notes apart. Now listen to some other intervals.



Using C as a starting point...

1. Play C and E and listen...this interval is a 3rd—they are three notes apart as shown by the numbers in the picture above. **Count the keys** as shown in the picture.
2. Play C and E^2 and listen...this is a 10th. **Count the keys** as shown in the picture.
3. Play C and A^2—a 6th. **Count the keys.**
4. Play C and G—a 5th. **Count the keys.**

You can teach your ears to hear intervals. Have someone play two notes, you hum them. Then, hum them again, but also hum the notes in between from the low to high note. Count the notes as you hum them.



MAJOR, MINOR, AND 7TH SOUNDS

Intervals can be used in combinations to create interesting melodic effects.

PRESS SONG

Input: C, E, G, C^2, G, E, C, E, G, C^2, G, E

PRESS PLAY

This is a MAJOR sound–it's a "happy" sound! After a touchdown in a football game, the bugler plays a "charge!" tune–a MAJOR SOUND.

Press NEW SONG before each new Input.

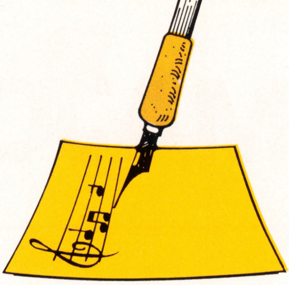
Input: A, C, F, A^2, F, C, A, C, F, A^2, F, C
This is another MAJOR sound.

Input: A, C, E, A^2, E, C, A, C, E, A^2, E, C
This is a MINOR sound. **Very often, it is used in "sad" songs.** Can you hear the difference between the MAJOR and MINOR sounds?

Input: B, D, F, G, F, D, B, D, F, G, F, D
This is a SEVENTH sound. **It has a "bluesy" sound.**

Try the above again, but this time after each PLAY, press MIX. You will hear that even though the notes are scrambled, each input will still have the basic MAJOR, MINOR or SEVENTH sound.

BECOME A SONGWRITER!



Most songs have 4 parts:

Part 1 contains the main melody of the song.

Part 2 usually contains the same melody as Part 1 except the words are different. Sometimes this part is left out.

Part 3 is different than the first two parts. This melody is called the "bridge" because it connects the first two parts with the 4th part.

Part 4 is the same melody as Parts 1 and 2. Again, the words are generally different than the first two parts.

Listen to some songs and see if you can hear these different parts.

It's easy to compose your own songs.

HERE'S HOW:

1. Input any number of notes and/or rests up to 16.
2. Press PLAY and listen...
3. If you like the way it sounds, write the notes and rests down in the blanks provided on pages 67 and 68. (Use illustration on page 50 as a guide for writing A or A^2, B or B^2, etc., for the corresponding display character.)
4. If you want to hear it another way, press MIX The computer will **scramble** the melody notes into a different melody.
5. Repeat steps (2) (3) and (4) if you wish.

6. If you want to start over again press **NEW SONG** to clear the computer's memory and start again, or...

7. If you'd rather change only one or two notes, use ◀ LEFT or ▶ RIGHT keys to move the Cursor to the note(s) you want to change and then input the new note(s).

8. Use MAJOR, MINOR and SEVENTH sounds to compose some songs. (See page 65.)

9. Try and write words to your songs. Change notes or rests to match the words. Or, write a poem first, then compose a melody to fit the words.

USE THIS SPACE FOR COMPOSING YOUR OWN SONGS.

SONG TITLE ____________________

____

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

SONG TITLE ____________________

____

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

USE THIS SPACE FOR COMPOSING YOUR OWN SONGS.

SONG TITLE

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

INPUT 1								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
INPUT 2								
	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16

Answers to song examples on page 55

1. Snowbird
2. Happy Birthday To You
3. Yankee Doodle
4. America (My Country 'Tis Of Thee)
5. Jingle Bells
6. Everything Is Beautiful
7. I Believe In Music
8. She'll Be Coming 'Round The Mountain
9. I've Been Working On The Railroad
10. Star Wars

Answers to songs on pages 59–63.

INPUT 1	C	E	F	G	—	—	—	—
	1	2	3	4	5	6	7	8
	C	E	F	G	—	—	—	—
	9	10	11	12	13	14	15	16
INPUT 2	C	E	F	G	—	E	—	C
	1	2	3	4	5	6	7	8
	—	E	—	D	—	—	—	—
	9	10	11	12	13	14	15	16

1.

INPUT 1	E	—	G	—	C	—	E	—
	1	2	3	4	5	6	7	8
	E	D	F	—	—	—	—	—
	9	10	11	12	13	14	15	16
INPUT 2	D	—	F	F	B	—	D	—
	1	2	3	4	5	6	7	8
	D	C	E	—	—	—	—	—
	9	10	11	12	13	14	15	16

2.

INPUT 1	C	E	G	E	G	A^2	G	—
	1	2	3	4	5	6	7	8
	E	G	A^2	—	—	—	G	—
	9	10	11	12	13	14	15	16
INPUT 2	E	G	G	E	F	E	D	—
	1	2	3	4	5	6	7	8
	C	D	E	—	D	—	C	—
	9	10	11	12	13	14	15	16

3.

INPUT 1	G	G	E	G	A^2	G	E	—
	1	2	3	4	5	6	7	8
	E	D	—	—	E	D	—	—
	9	10	11	12	13	14	15	16
INPUT 2	G	G	E	G	A^2	G	E	—
	1	2	3	4	5	6	7	8
	D	—	E	D	C	—	—	—
	9	10	11	12	13	14	15	16

4.

INPUT 1	C	—	C	D	E	—	E	F
	1	2	3	4	5	6	7	8
	G	—	A^2	G	E	—	—	—
	9	10	11	12	13	14	15	16
INPUT 2	G	—	F	E	D	—	—	—
	1	2	3	4	5	6	7	8
	F	—	E	D	C	—	—	—
	9	10	11	12	13	14	15	16

5.

INPUT 1	E^2	—	C^2	—	G	C^2	—	—
	1	2	3	4	5	6	7	8
	E^2	—	C^2	—	D^2	D^2	—	—
	9	10	11	12	13	14	15	16
INPUT 2	E^2	—	C^2	—	F^2	F^2	—	F^2
	1	2	3	4	5	6	7	8
	E^2	E^2	D^2	D^2	C^2	—	—	—
	9	10	11	12	13	14	15	16

6.

7.

INPUT 1	G	A^2	G	E	C	—	C^2	C^2
	1	2	3	4	5	6	7	8
	B^2	B^2	D	E	F	—	—	—
	9	10	11	12	13	14	15	16
INPUT 2	F	G	F	D	B	—	A^2	—
	1	2	3	4	5	6	7	8
	G	—	C	D	E	—	—	—
	9	10	11	12	13	14	15	16

8.

INPUT 1	A^2	—	—	G	G	F	E	F
	1	2	3	4	5	6	7	8
	G	—	—	—	D	—	—	G
	9	10	11	12	13	14	15	16
INPUT 2	G	—	—	A^2	G	E	D	C
	1	2	3	4	5	6	7	8
	F	—	—	—	—	—	—	—
	9	10	11	12	13	14	15	16

9.

INPUT 1	F	F	F	C	D	D	C	—
	1	2	3	4	5	6	7	8
	A^2	A^2	G	G	F	—	—	C
	9	10	11	12	13	14	15	16
INPUT 2	F	F	F	C	D	D	C	—
	1	2	3	4	5	6	7	8
	A^2	A^2	G	G	F	—	—	—
	9	10	11	12	13	14	15	16

10.

INPUT 1	G	E	G	—	G	E	G	—
	1	2	3	4	5	6	7	8
	G	E	G	A^2	G	E	G	—
	9	10	11	12	13	14	15	16
INPUT 2	E	F	G	F	—	D	G	F
	1	2	3	4	5	6	7	8
	—	D	C	—	—	—	—	—
	9	10	11	12	13	14	15	16

11.

INPUT 1	C	E	G	—	G	—	G	—
	1	2	3	4	5	6	7	8
	G	—	G	—	—	C^2	G	—
	9	10	11	12	13	14	15	16
INPUT 2	E	F	G	—	G	—	F	D
	1	2	3	4	5	6	7	8
	—	—	C	—	—	—	—	—
	9	10	11	12	13	14	15	16

12.

INPUT 1	G	—	G	—	—	E	E	—
	1	2	3	4	5	6	7	8
	G	—	G	—	—	D	D	—
	9	10	11	12	13	14	15	16
INPUT 2	E	—	F	—	G	—	A^2	—
	1	2	3	4	5	6	7	8
	B^2	—	G	—	—	—	—	—
	9	10	11	12	13	14	15	16

13.

INPUT 1	G	—	—	A^2	B^2	—	B^2	—
	1	2	3	4	5	6	7	8
	A^2	G	A^2	B^2	G	—	D	—
	9	10	11	12	13	14	15	16
INPUT 2	G	—	—	A^2	B^2	—	B^2	—
	1	2	3	4	5	6	7	8
	A^2	G	A^2	B^2	G	—	—	—
	9	10	11	12	13	14	15	16

Before you play the following songs, read this.

REPEAT SIGNS

Repeat signs tell you to play a song, or part of a song, twice. Sometimes there is more than one set of words to guide you. The first and last lines of SILENT NIGHT (page 77) are shown here.

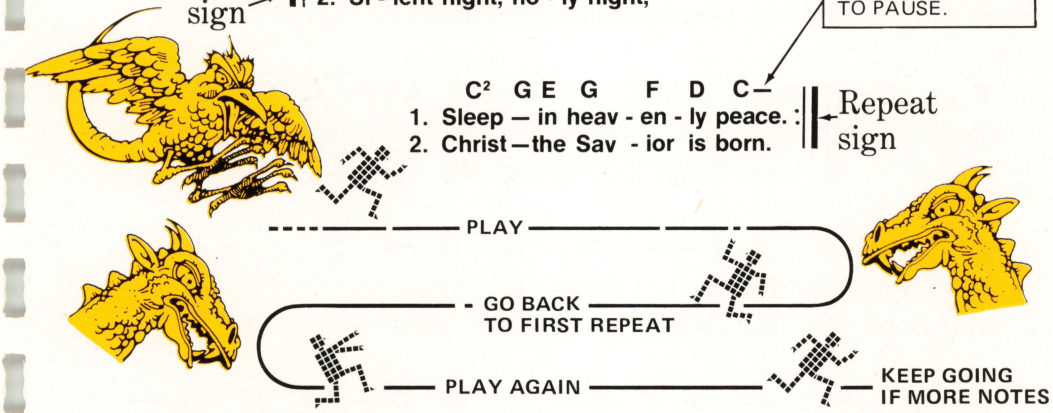
First repeat sign ‖:

G A^2 G E– G A^2G E–
1. Si - lent night, ho - ly night,
2. Si - lent night, ho - ly night,

A LINE AFTER A NOTE TELLS YOU TO PAUSE.

C^2 G E G F D C–
1. Sleep — in heav - en - ly peace. :‖
2. Christ—the Sav - ior is born.

Repeat sign

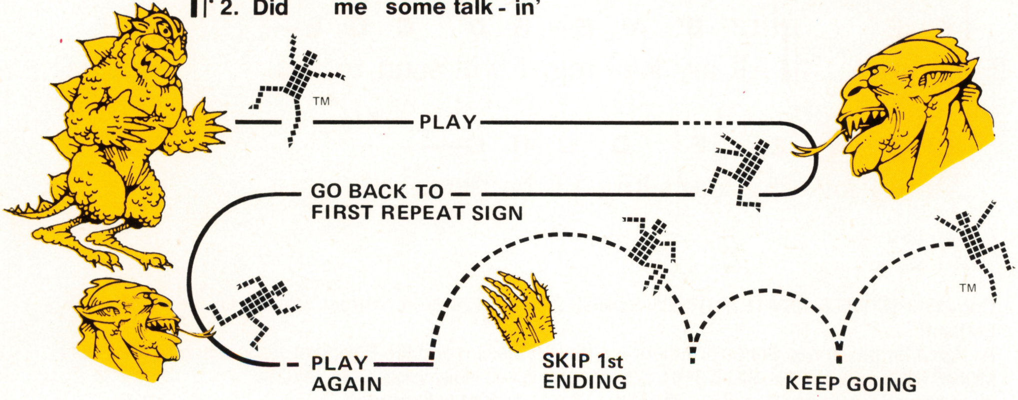

PLAY
GO BACK TO FIRST REPEAT
PLAY AGAIN
KEEP GOING IF MORE NOTES

DOUBLE ENDINGS

Play ending 1 the first time and ending 2 the second time. Song is on page 82.

DOUBLE ENDING
1st ending | 2nd ending

E E E F E | 1. C C D | 2. C C D
‖: 1. Rain - drops keep fall - in' ——— So I just : | But there's one
2. Did me some talk - in'


TM
PLAY
GO BACK TO FIRST REPEAT SIGN
PLAY AGAIN
SKIP 1st ENDING
KEEP GOING
TM

SONGS TO PLAY

ALL MY LOVING

Words and Music by John Lennon and Paul McCartney

F E ‖ D— E F G A^2—B^2 C^2— C^2 B^2 A^2 E—
1. Close your ‖: eyes and I'll kiss you, To - mor - row I'll miss you,
tend that I'm kiss-ing the lips I am miss-ing

A^2 A^2— A G F— D C D—
1. Re - mem - ber I'll al - ways be true.
2. And hope that my dreams will come true.

F E D— E F G— A^2 B^2 C^2— C^2 B^2 A^2 E—
1.&2. And then while I'm a - way I'll write home ev-'ry day ____

A^2 A^2 A^2— A^2 G F E—D C—
1.&2. And I'll send all my lov - ing to you.

1. F E :‖ 2. C^2 B^2 A^2 E— E D C D E—
2. I'll pre - :‖ All my lov - ing, I will send to you.

C^2 B^2 A^2 E— E D C D C—
All my lov - ing, dar - ling I'll be true.

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AMERICA
(My Country 'Tis of Thee)

C C D B— C D
My coun - try 'tis of thee

E E F E— D C
Sweet land of lib - er - ty,

D C B C—
Of thee I sing.

G G G G— F E
Land where my fath - ers died,

F F F F— E D
Land of the pil - grims' pride

E F E D C E– F G
From ev - 'ry___ moun - tain - side

A^2 F E D C—
Let___ free - dom ring.

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BORN FREE

Lyric by Don Black
Music by John Barry

C^2— G—G A^2 G F E— C——
Born free, as free as the wind blows,

G A^2 G F B^2—G E F F F E D C—
As free as the grass grows, born free to fol - low your heart.

C^2— G— G A^2 G F E C—
Live free, and beau - ty sur - rounds you.

G A^2 G F B^2— G E G G G A^2 G B^2—
The world still as - tounds you each time you look at a star.

D^2— A^2— A^2 B^2 A^2 G E— C^2—
Stay free, where no walls di - vide you,

C^2 D^2 A^2 C^2 D^2 C^2 D^2 C^2 D^2 C^2 D^2 C^2 D^2—
You're free as a roar - ing tide, so there's no need to hide.

C^2—G— G A^2 G F E— C—
Born free, and life is worth liv - ing,

G A^2 G F B^2— G E C^2— C^2—C^2—
But on - ly worth liv - ing 'cause you're born free.

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GOODBYE

Words and Music by John Lennon and Paul McCartney

G— C^2 C^2 E^2 E^2 G^2 G^2—
𝄆 1. Please, don't wake me up too late,
2. Songs that lin - gered on my lips

G^2 E^2— A^2— E^2— D^2 C^2- F- A^2–C^2- A^2 G—
1. To - mor - row comes and I will not be late.__
2. Ex - cite me now and lin - ger on my mind.__

G—C^2 C^2 E^2 E^2 G^2 G^2 G^2 E^2— A^2—
1. Late to - day, when it be - comes to - mor - row,
2. Leave your flow - ers at my door, I'll leave them

E^2— D^2 C^2 B^2 A^2 B^2 C^2—
1. I will leave to go a - way.
2. For the one who waits be -hind.

G^2 G^2—G G—G^2 G^2—
1.&2. Good - bye, Good - bye, Good - bye

D^2 B^2—D^2 | 1. B^2— D^2—B^2 G— | 2. B^2— D^2— E^2—
1.&2. Good - bye my love, Good - bye.__ :𝄇 love, Good - bye.

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GREEN GREEN GRASS OF HOME

Words and Music by Curly Putman

E G G G G A^2 G——
1. The ‖: old home - town looks the same,
2. old house___ is still standing,

G G A^2 C^2 A^2 C^2 G——
1. As I step down from the train,
2. Tho' the paint is cracked and dry,

G C^2 D^2 E^2 E^2—— D^2 E^2 F^2 E^2 D^2 C^2 B^2 D^2——
1. And there to greet me___is my ma - ma and my pa - pa;
2. And there's that old oak___tree that I used___ to play on;

C^2 E^2 G^2 G^2 G^2 G^2 F^2 E^2 D^2 C^2——
1. Down the road I look and there runs Ma - ry,
2. Down the road I walk with my sweet Ma - ry,

C^2 C^2 B^2 C^2 D^2 C^2 B^2 A^2
1.&2. Hair of gold and lips like cher - ries,

A^2 G G C^2 C^2 D^2 D^2 C^2 B^2 C^2——
1.&2. It's good to touch the green, green grass of home.

C^2 E^2 G^2—G^2 E^2 F^2 E^2——
1. Yes, they'll all come to meet me,
2. Yes, they'll all come to see me,

E^2 D^2 D^2 C^2—B^2 C^2 1. D^2 C^2——
1. Arms___ reach - ing smil - ing sweet - ly;
2. In the shade___ of the

A^2 G G C^2 C^2 D^2 D^2 C^2 B^2 C^2——
1. It's good to touch the green, green grass of home. The :‖

2. D^2 C^2 B^2 A^2 A^2 G C^2—— C^2 C^2 D^2 F^2 C^2 B^2 C^2——
2. Old oak tree, as they lay me 'neath the green, green grass of home.

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HAPPY BIRTHDAY TO YOU

By Mildred and Patty Hill

G G A^2 G C^2 B^2——
Hap - py birth - day to you,

G G A^2 G D^2 C^2——
Hap - py birth - day to you,

G G G^2 E^2 C^2 B^2 A^2——
Hap - py birth - day dear ______________________
(name)

F^2 F^2 E^2 C^2 D^2 C^2
Hap - py birth - day to you.

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SILENT NIGHT

G A^2 G E—— G A^2 G E——
𝄆 1. Si - lent night, ho - ly night,
2. Si - lent night, ho - ly night,

D^2——D^2 B^2—— C^2—— C^2 G——
1. All is calm, all is bright,
2. Shep - herds quake at the sight,

A^2—— A^2 C^2 B^2 A^2 G A^2 G E——
1. 'Round yon vir - gin moth - er and child
2. Glo - ries stream_ from heav - en a - far,

A^2—— A^2 C^2 B^2 A^2 G A^2 G E——
1. Ho - ly in - fant so ten - der and mild,
2. Heav'n - ly hosts___ sing Al - le - lu - ia!

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Continued

D^2— D^2 F^2 D^2 B^2 C^2— E^2—
1. Sleep in heav - en - ly peace, ______
2. Christ, the Sav - ior is born, ______

C^2 G E G F D C—
1. Sleep___ in heav - en - ly peace.
2. Christ,___ the Sav - ior is born.

I BELIEVE IN MUSIC

Words and Music by Mac Davis

G E E E E D E E D E C D E D—
Well, I could just sit a - round mak - in' mu - sic all day long,
D D D D C D E D C A C E D C A C—
Long as I'm mak-in' mu-sic I know I can't do no-bod-y wrong.
G G E—E D E C C D D D C D—
And who knows, may - be some day I'll come up with a song
A C D C D C D C D C D C A
That makes peo - ple wan - na stop their fus - sin' and fight - in'
A E D C C C C C—
Just long e - nough to sing a - long.
E— E F E E—D—
I be - lieve in mu - sic.
C— D E D C—
I be - lieve in love.
E— E E F E E—D—
I, I be - lieve in mu - sic.
C— D E D C—
I be - lieve in love.
E G G E A^2 G
(Sing it to me chil - dren)

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E——— E F G E E—D——
I, I be - lieve in mu - sic

A^2 D C C——— D D E D C———
Lord knows that I, I be - lieve in love.

EVERYTHING IS BEAUTIFUL

Words and Music by Ray Stevens

E^2 E^2 E^2 D^2 C^2 A^2 G— C^2—
Je - sus loves the lit - tle chil - dren,
D^2 D^2 D^2 D^2 E^2 D^2 C^2 E^2 D^2—
All the lit - tle chil - dren of the world.
G F E G C^2 D^2 C^2 C^2 B^2 A^2 B^2 C^2 A^2 G
Red and yel-low, black and white, they are pre-cious in His sight,
E^2 D^2 C^2 B^2 C^2 A^2 B^2 G B^2 D^2 C^2—
Je - sus loves the lit - tle chil - dren of the world.
E G G E ‖: A^2— G G——E F E D——
Eve - ry - thing is ‖: beau - ti ful in its own way,
A B C D E D D
1. Like a star - ry sum - mer night,
2. Un - der God's__ heav - en
1. 2.
G G A^2 G G E D C D E— E G G E: C——
1. Or a snow cov - ered win - ter's__ day. Eve - ry bod - y's :
2. The__world's gon - na find__ a__ way.
E E F E E D— D A C D E D C—
There is none so blind__ as he who will not see,__
G G G G G G E D—D D A C D E D C—
We must not close our minds, __ we must let our thoughts be free,__
G C^2 C^2 C^2— G B^2 B^2 A^2 G
For ev - 'ry hour that pas - ses by__
C A^2 G A^2 G E G G G E D C
You know the world gets a lit - tle bit old - er,

Continued

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C G E G G A E G E G
It's time to re - al - ize that beau - ty lies
E E C— C D E D C——
In the eyes of the be - hold - er.
C E G G E A^2—G G—E F E D——
And eve - ry - thing is beau - ti - ful in its own way,
A B C D E D D G A^2 G G E D C D C——
Un - der God's___ heav - en The world's gon - na find___ a___ way.

I'VE BEEN WORKING ON THE RAILROAD

G— D G D G A^2 B^2— G—
I've been work-ing on the rail - road

C^2 – C^2 G A^2 B^2—
All the live long day,

G—D G D G A^2 B^2— G
I've been work - ing on the rail - road

B^2 B^2 B^2 A^2 A^2 B^2 A^2—
Just to pass the time a - way.

A^2— A^2 B^2 A^2 B^2 A^2 G— D—
Can't you hear the whis - tle blow - ing,

C^2 C^2 C^2 G G A^2 A^2 B^2—
Rise up so ear - ly in the morn,

E— E G E G E D— G
Can't you hear the cap - tain shout - ing

A^2 B^2 C^2 B^2 A^2 G—
Oh, Di - nah blow your horn.

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JINGLE BELLS

G E^2 D^2 C^2 G——
Dash - ing thru the snow,

G G G E^2 D^2 C^2 A^2——
In a one horse o - pen sleigh,

A^2 F^2 E^2 D^2 B^2——
O'er the fields we go,

G^2 G^2 F D^2 E^2——
Laugh - ing all the way;

G E^2 D^2 C^2 G——
Bells on bob - tail ring,

G E^2 D^2 C^2 A^2——
Mak - ing spir - its bright,

A A F E D G G G G A^2 G F D C G——
What fun it is to ride and sing a sleigh - ing song to - night! Oh,

‖: E E E—— E E E—— E G C D E——
Jin - gle Bells! Jin - gle Bells! Jin - gle all the way!

F F F F F E E
Oh, what fun it is to ride

E E | 1. E D D E D—— G—— |
In a one horse o - pen sleigh!___ :‖

| 2. G G F D C |
One horse o - pen sleigh!

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RAINDROPS KEEP FALLIN' ON MY HEAD

Lyric by Hal David
Music by Burt Bacharach

E E E F E D C E—
𝄆 1. Rain - drops keep fall - in' on my head,
2. did me some talk - in' to the sun,

E G G G A^2 G F E E F D C B^2— A^2 G E C B^2—
1. And just like the guy whose feet are too big for his bed, noth-in' seems to fit.
2. And I said I did - n't like the way he got things done, sleep-in' on the job.

A^2— G G E F G F E G G E F G—
1.&2. Those rain - drops are fall - in' on my head, they keep fall - in',

1.
C C D
2. So I just 𝄇

2.
C C D E— G D—
But there's one thing I know,

E F E D C E D E F A^2 G—
The blues they send to meet me won't de - feat me,

E A^2 G G E B^2 A^2 G E D C E D— C D— C^2 D^2—
It won't be long till hap - pi - ness steps up to greet me. *(Instrumental)*

E E E F E D C E—
Rain - drops keep fall - in' on my head,

E G G G A^2 G F E E F D C B^2— A^2 G E C B^2—
But that does-n't mean my eyes will soon be turn-in' red, cry-in's not for me

A^2— G G E F G F E G G E F G—
'Cause I'm nev - er gon - na stop the rain by com - plain - in',

C C D E— C C A^2 G C D E D E D E D C—
Be - cause I'm free. Noth - in's wor - ry - in' me.______

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MICHELLE

Words and Music by John Lennon and Paul McCartney

E— E— F C— B E B B A C D C B— A C B—
Mi-chelle ma belle, These are words that go to-geth-er well, my Mi-chelle.

||: E— E— F C— B E B B A C D C B— A B C B—
1.&2. Mi-chelle ma belle sont les mots qui vont tres bien en-semble, tres bien en-semble.

E A G E A G E B A— E F E F C C—
1. I love you, I love you, I love you, That's all I want to say
2. I need you, I need you, I need you. I need to make you see

E E E A E D CB-B D E E E E E E E E E—
1. Un-til I find a way__ I will say the on - ly words I know that you'll
2. what you mean to me.__ Un - til I do, I'm hop-ing you will know

D C 1. **B— :||** 2. **B—**
un - der - stand
what I mean

E A G E A G E B A— E F E F C C—
I want you, I want you, I want you. I think you know by now.

E E E A E D CB-D E E E E E E E E E— D C B—
I'll get to you some-how.__ Un-til I do, I'm tell-ing you, so you'll un-der-stand.

E— E— F C— B E B B A C D C B— A B C B—
Mi-chelle ma belle, sont les mots qui vont tres bien en-semble, tres bien en-semble.

A B C A D B C A D B C— D C B— C D E—
I will say the on-ly words I know that you'll un-der-stand, my Mi-chelle.

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SHE'LL BE COMING 'ROUND THE MOUNTAIN

G A^2 C^2 C^2 C^2 C^2 A^2 G E G C^2—
1. She'll be com - ing 'round the moun - tain when she comes

C^2 D^2 E^2 E^2 E^2 E^2 G^2 E^2 D^2 C^2 D^2—
She'll be com - ing 'round the moun - tain when she comes

G^2 F^2 E^2 E^2 E^2 E^2 D^2 C^2 C^2 C^2 A^2 A^2 A^2 A^2 D^2 C^2
She'll be com-ing 'round the moun-tain, she'll be com-ing 'round the mountain,

B^2 A^2 G G G G E^2 D^2 A^2 B^2 C —
She'll be com - ing 'round the moun - tain when she comes.

Additional words
2. Oh who will drive the Liz - zie when she comes. *etc.*
3. We will chase the old red roos - ster when she comes. *etc.*
4. And we'll all have chicken dumplings when she comes. *etc.*

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STAR WARS

Music by John Williams

DD ‖: G— D^2— C^2 B^2 A^2 G^2— D^2
C^2 B^2 A^2 G^2— D^2 C^2 B^2 C^2 A^2— DD :‖
E— E C^2 B^2 A^2 G G A^2 B^2 A^2 E A^2
DD E— E C^2 B^2 A^2 G D^2 A^2—
DD E— E C^2 B^2 A^2 G G A^2 B^2 A^2 E A^2
D^2 D^2 G^2 G^2 F^2 D^2 C^2 C^2 A^2 G D^2—
DD ‖: G— D^2— C^2 B^2 A^2 G^2— D^2
1.
C^2 B^2 A^2 G^2— D^2 C^2 B^2 C^2 A^2— DD :‖
2.
C^2 B^2 C^2 A^2— D^2 G^2— G^2 G^2 G^2 G^2

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SNOWBIRD

Words and Music by Gene MacLellan

C^2 C^2 B^2 B^2 A^2 A^2 G G C D—
1. Be - ‖: neath this snow - y man - tle cold and clean
2. I was young my heart was young then too

(G) G (G) G F F E E D D E F G E D G—
↓ 1. The ↓ un - born grass lies wait-ing for its coat to turn to green.
2. And an-ything that it would tell me that's the thing that I would do.

C^2 C^2 B^2 B^2 A^2 A^2 G G C D—
1. The snow - bird sings the song he al - ways sings
2. But now I feel such emp - ti - ness with - in

1. 2.
(G) G G F F E D D D E (E) F F E D C C^2 :‖ C—
↓ 1. And speaks to me of flow-ers that will ↓ bloom a - gain in spring. When :‖
2. For the thing I want the most in life is the thing that I can't win.

C^2 B^2 B^2 A^2 A^2 G G C D—
Spread your ti - ny wings and fly a - way,

G G F F E E D D E F G E D G—
And take the snow back with you where it came from on that day

C^2 C^2 B^2 B^2 A^2 A^2 G G C D—
The one I love for - ev - er is un - true,

G G F F E E D D E F F E D C—
And if I could you know that I would fly a - way with you.

C^2 C^2 B^2 B^2 A^2 A^2 G G C D—
The breeze a - long the riv - er seems to say

D E G F F E E D D E F G E C G—
That he'll on-ly break my heart a-gain should I de-cide to stay.

G A^2 B^2 C^2 B^2 B^2 A^2 A^2 G G C D—
So lit - tle Snow - bird take me with you when you go

E F G F F E E D D E F G E D C—
To that land of gen-tle breez-es where the peace-ful wat-ers flow.

B^2 A^2 B^2 B^2 B^2 A^2 G G F G A^2— C^2 C^2 C^2 E^2—
Yeah___ if I could you know that I would fly a - way with you.

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THE WAY WE WERE

Lyric by Alan and Marilyn Bergman
Music by Marvin Hamlisch

A^2– G– G A^2 C^2 B^2 A^2 G^2 E——
Mem - 'ries light the cor - ners of my mind.

D E G E G E B^2— A^2—D E D C E——
Mist - y wa - ter col - or mem - 'ries of the way we were.

C E A^2— G—G A^2 C^2 B^2 A^2 G E——
Scat - tered pic - tures of the smiles we left be - hind,

D E G E G E B^2—A^2–D E D C E——
Smiles we gave to one an - oth - er for the way we were.

C C^2 C^2 C^2 C^2 C^2 C^2 C^2 B^2 A^2 A^2——
Can it be that it was all so sim - ple then,

B^2 B^2 B^2 B^2 B^2 B^2 A^2 G B^2——
Or has time re - writ - ten ev - 'ry line?

A^2 A^2 A^2 A^2 A^2 A^2 G A^2 G F F——
If we had the chance to do it all a - gain,

A^2 G E G— D G——
Tell me would we? Could we?

A^2— G— G A^2 C^2 B^2 A^2 G E——
Mem - 'ries may be beau - ti - ful, and yet,

D E G E G E B^2— A^2——
What's too pain - ful to re - mem - ber

A^2 B^2 C^2 B^2 E^2 D^2 C^2——
We sim - ply choose to for - get.

Continued

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C^2 B^2 A^2 A^2— G— E^2 D^2 C^2 A^2— G——
So it's the laugh - ter we will re - mem - ber,

E^2 F^2 E^2 D^2 C^2 A^2— G— E D C E——
When - ev - er we re - mem - ber the way we were;

E D C C——
The way we were.

WE'VE ONLY JUST BEGUN

Lyrics by Paul Williams
Music by Roger Nichols

C D F F C^2 A^2— A^2 C^2——
We've on - ly just be - gun to live,

E^2 D^2 C^2 A^2 G F——
White lace and prom - is - es.

F E^2 F^2 F^2 D^2 C^2 A^2 A^2 G——
A kiss for luck and we're on our way.

C D F F C^2 A^2— A^2 C^2
Be - fore the ris - ing sun we fly,

E^2 D^2 C^2 A^2 G F——
So many - y roads to choose.

F E^2 F^2 F^2 D^2 C^2 A^2 A^2 G——
We start out walk - ing and learn to run.

C D F F C^2 A^2——
And yes, we've just be - gun.

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YANKEE DOODLE

C^2 C^2 D^2 E^2 C^2 E^2 D^2
‖: 1. Father and I went down to camp
2. There we saw a thou - sand men,

G C^2 C^2 D^2 E^2 C^2— B^2
1. A - long with Cap - tain Good - ing
2. As rich as Squire___ Da - vid

G C^2 C^2 D^2 E^2 F^2 E^2 D^2
1. And there we saw the men and boys
2. And what they wast - ed ev - ’ry day

C^2 B^2 G A^2 B^2 C^2— C^2—
1. As thick as ha - sty pud - ding.
2. I wish it could be sav - ed.

A^2 B^2 A^2 G A^2 B^2 C^2—
1.&2. Yan - kee Doo - dle keep it up,

G A^2 G F E G
Yan - kee Doo - dle dan - dy,

A^2 B^2 A^2 G A^2 B^2 C^2
Mind the mu - sic and the step,

A^2 G C^2 B^2 D^2 C^2— C^2—
And with the girls be hand - y. :‖

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YELLOW SUBMARINE

Words and Music by John Lennon and Paul McCartney

E F G– E D E C—
1. In the ‖: town where I was born
2. told us of his life
3. sailed up to the sun
4. lived be - neath the waves

E E D C A— E E E | **1. 2. 3. D— E F**
1. Lived a man ____ who sailed to sea. 2. And he ‖ *(Repeat*
2. In the land ____ of sub - ma - rines. 3. So we :‖ *3 times)*
3. Till we found ____ the sea of green. 4. And we ‖
4. In our yel - low _ sub - ma - rine. ____

4. G– G– G– G A² D D D D D—
We all live in a yel - low sub - ma - rine,
D D D D D— C C C C C—
Yel - low sub - ma - rine, yel - low sub - ma - rine.

G— G– G— G A² D D D D D—
‖: 1.&2. We all live in a yel - low sub - ma - rine,
D D D D D— C C C C C—
1.&2. Yel - low sub - ma - rine, yel - low sub - ma - rine.
E F G— E D E C—
1. And our friends are all on board,
2. As we live a life of ease,
E E D C A— E E D—
1. Man - y more of them live next door.
2. Ev - 'ry one of us has all we need.

E F G— E D E | **1. C—** ‖ **2. C—**
1. And the band be - gins to play. :‖
2. Sky of blue and sea of green
E E D C A— E E C—
In our yel - low ____ sub - ma - rine.

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Drawing with THE CHILDREN'S DISCOVERY SYSTEM™ computer is an innovative, refreshing and totally involving experience. Geometric shapes, bold designs, patterns, games and the imagination of your child all come into play.

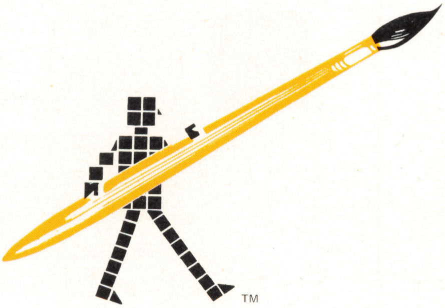
There are art styles and design elements to learn, things to draw, and art games that one or two can play. Through art your child can achieve the sense of satisfaction that comes from expressing his or her own creative ideas. And part of the magic of this art comes from the computer itself; new ideas spring from the capabilities of the computer and the different art "look" that you see on the computer screen. With the computer an enriching atmosphere of electronics is brought to art, along with the novelty of drawing with something other than crayon or pencil.

Once your child fully comprehends the computer's art capabilities, the imagination will take off and the creative sparks will begin to fly!

art mode

Welcome to the world of computer art! Your computer is a very special place of squares and lines and angles and spaces and designs. And the beauty of computer art is that it can be anything you want. You can learn about how art started and about perspective. You will learn about a different way of drawing, called cubism, and find famous big art the world over. You can draw pictures of animals you know or make them up as you go. There are even art games to play alone or with a friend. With your computer, it's up to you. Draw a crazy mixed-up zoo. Imagine a thing and zing—you can make it appear on your screen.

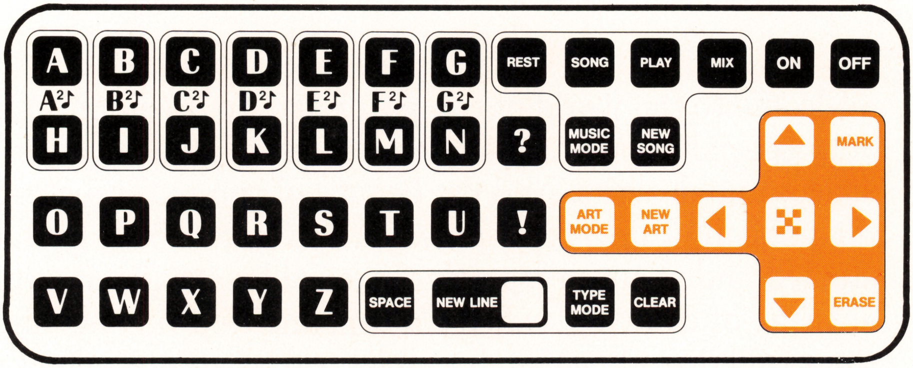
So get set for a new and different kind of art fun. Computer drawing!



ART MODE INSTRUCTION

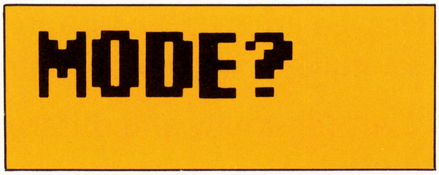
The Art Mode section is marked in orange on your keyboard.

GETTING STARTED IS EASY


A B C D E F G
A♭ B♭ C♭ D♭ E♭ F♭ G♭
H I J K L M N ?
O P Q R S T U !
V W X Y Z
REST SONG PLAY MIX ON OFF
MUSIC MODE
NEW SONG
ART MODE
NEW ART
MARK
ERASE
SPACE
NEW LINE
TYPE MODE
CLEAR

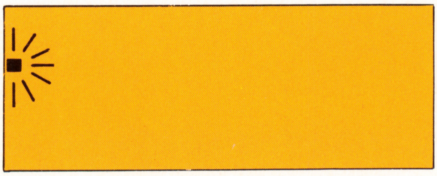
ON

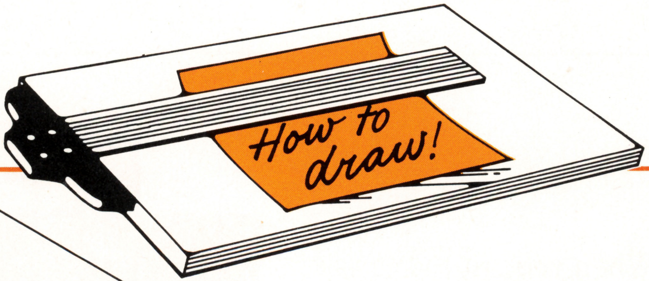
1. Press the ON key. You will see CURSOR THE GREAT™ run across the screen. The question, MODE? will appear.

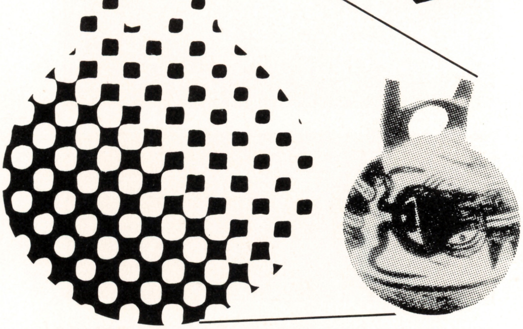


ART MODE

2. Answer by firmly pressing ART MODE. A small, blinking square will appear on the left side of the blank screen. The small square is called the cursor. It is your paintbrush and pencil, guiding you through a world of creativity and drawing.



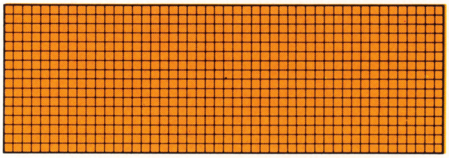




Have you ever looked closely at a newspaper photograph? It is made up of millions of tiny dots. The arrangement of those dots controls how the picture looks. Drawing with your computer is very similar.

Computer drawing is building pictures with small squares. These drawing squares are the same size as your blinking cursor.

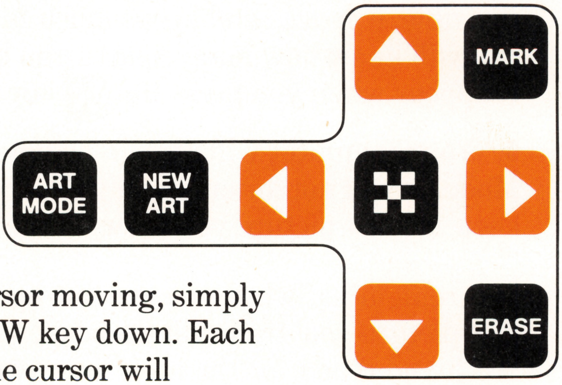
The cursor is a movable square that tells you where your next picture square will appear on the screen.

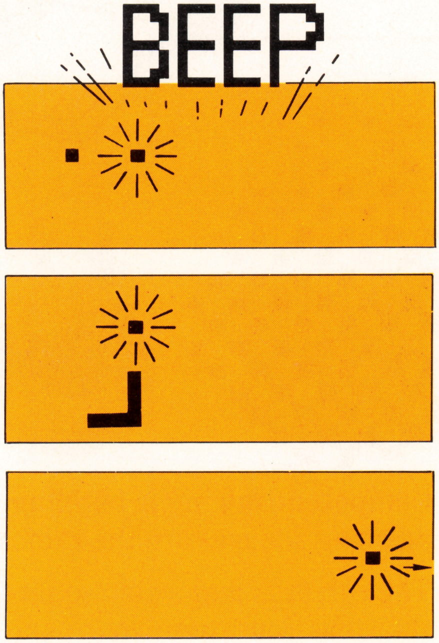


The cursor BLINKS so you can tell it apart from the drawing squares.

There are 768 squares on your entire screen that can be used to draw.

1. To draw, you must move the cursor with any one of the four ARROW keys. These keys move UP, DOWN, LEFT, RIGHT. To keep the cursor moving, simply hold the selected ARROW key down. Each time you hear a beep, the cursor will move one square.





MARK

2. When you put the cursor in a spot you want to fill in, press the MARK key. You will hear a BEEP. A black square will be left after you move the blinking cursor away from this spot. Try it! When you put these squares next to each other, you are "computer drawing."

▶

3. If you hold an ARROW key down after the cursor reaches an edge on the screen, the cursor will disappear off the screen and come back on the opposite side. If the cursor goes off the **right** side of the screen, it will come back on the **left** side.

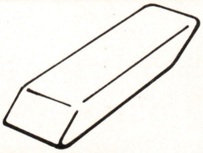
⁙

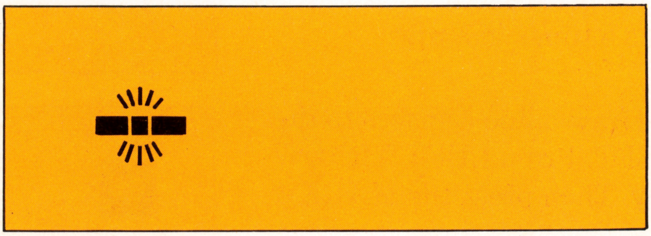
4. The cursor will disappear if you press the ⁙ key in the middle of the ARROW keys once. When the cursor is invisible, you can move it by pressing an ARROW key. When the cursor is invisible, it moves and beeps much faster. If you count the beeps, you will know how many spaces you have moved. The cursor will reappear when you press the ⁙ key again.

5. Your computer will remain on when you are working in the Art Mode. It will not automatically shut off after 2½ minutes, so you can keep the last picture you drew on the screen.

But remember, when you are finished, **turn your computer off.** The last picture you drew will then be erased. And the computer will be fresh and ready for the next time you want to use it.

HOW TO ERASE



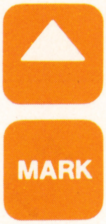


1. If you want to erase a picture square, move the cursor until it is on top of the square you want to erase. The cursor will be blinking. Then press the ERASE key. When you move the cursor away, you will see a BLANK SPACE where the cursor was.

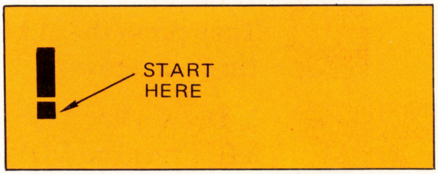
2. If you want to erase the entire screen, press NEW ART key. The entire screen will go blank, except for the cursor. It will be at the left side of the screen, just as it was when you started.

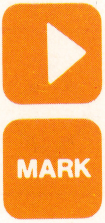
LET'S DRAW SIMPLE LINES!

For first time practice, try drawing lines.

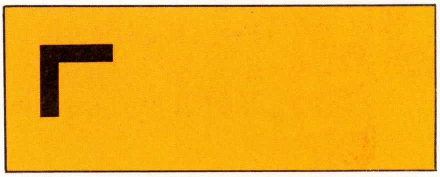


1. Draw a line 5 spaces UP. Press the UP ARROW key. Then press the MARK key. Do this 5 times in a row.



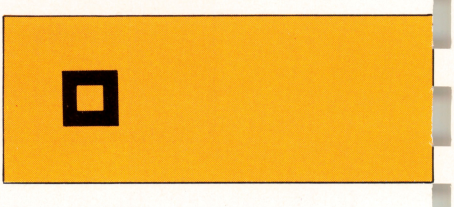


2. Draw a line 5 spaces to the RIGHT. Press the RIGHT ARROW key. Then press the MARK key. Do this 5 times in a row.



3. Draw a line 5 spaces DOWN. Press DOWN ARROW key. Then press the MARK key. Do this 5 times in a row.

4. Draw a line 5 spaces to the LEFT. Press LEFT ARROW key. Then press the MARK key. Do this 5 times in a row.

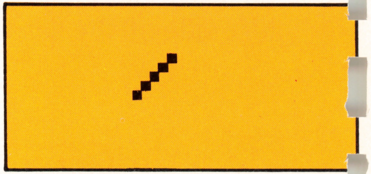


CONGRATULATIONS! You drew a square!

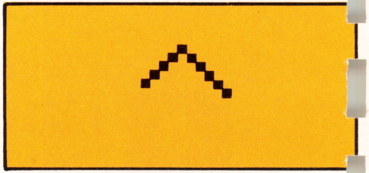
LET'S DRAW SLANTED (DIAGONAL) LINES!

This is a little harder than drawing straight lines, so take your time and read the instructions carefully. Start about the middle of the screen.

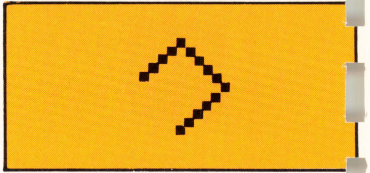
1. Draw a line that slants up to the right. Press the UP ARROW key. Then press the RIGHT ARROW key. Then press the MARK key. Do this 5 times in a row.



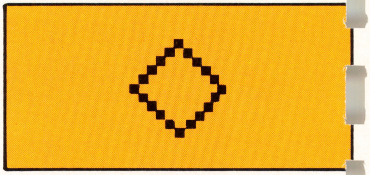
2. Draw a line that slants down to the right. Press the DOWN ARROW key. Then press the RIGHT ARROW key. Then press the MARK key. Do this 5 times in a row.



3. Draw a line that slants down to the left. Press the DOWN ARROW key. Then press the LEFT ARROW key. Then press the MARK key. Do this 5 times in a row.

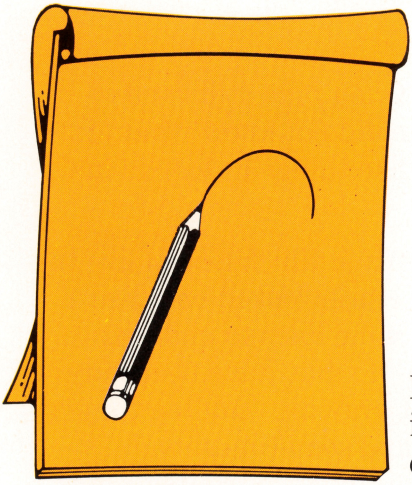


4. Draw a line that slants up to the left. Press the UP ARROW key. Then press the LEFT ARROW key. Then press the MARK key. Do this 5 times in a row.

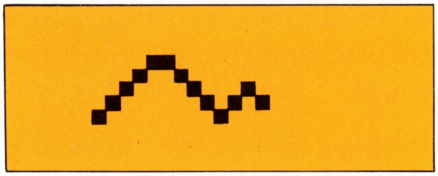


Congratulations again! You just drew a diamond!

COMPUTER DRAWING IS SOMETHING SPECIAL!

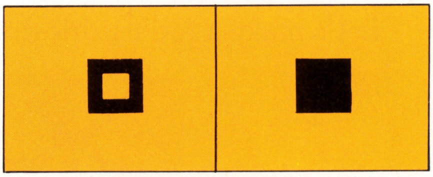


DRAWING WITH A PENCIL

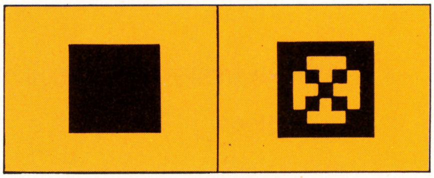


DRAWING WITH A COMPUTER

Drawing with squares is a special way of drawing. When you think of a picture you want to draw, you need to remember one thing about it: Instead of curved lines, you will have zigzag lines.



You'll find that drawing with squares gives you a whole new way of thinking about pictures. There are also two different ways you can draw with a computer. You can make an outline of your picture first, then fill it in. Start with a square like the one you drew to practice straight lines. Then fill in the spaces.



Or, you can fill in a whole block of squares, then erase certain squares (see page 95) wherever you want. Start with a filled-in square. Erase some of the squares until you form an X.

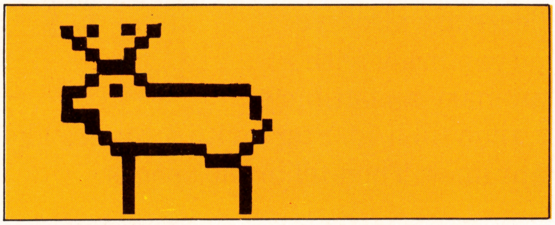
REMEMBER: When your computer is in ARTMODE, it won't turn off by itself.

HOW DID ART GET STARTED?

The very first art work may have started when man still lived in caves in prehistoric times. Prehistoric man did not know what art was; he simply knew his drawings looked like things he saw in his world.

Perhaps prehistoric man saw cracks in his cave which looked like the shape of an animal or a tree. Alone, these cracks looked only like a tiny bit of what he had seen. So he added some lines to make his cracks complete and saw a clearer picture. He may have been surprised at his cave drawings and so he kept drawing – adding bigger lines. He drew with rocks and his fingers and sometimes made drawings with color made from berry juice. Today, of course, art is very advanced from those prehistoric days. But wouldn't it be fun to see if we could draw prehistoric art on a computer?

Let's make a prehistoric drawing of a deer.



Try these first, then check your drawings with the ones on page 114.

Bison

(NOTE: Move the blinking cursor to where the hunter's mouth would be – is he talking to you?)

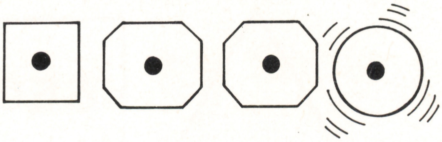
Hunter

Club

Axe

Horse

WORLD OF WHEELS!



Wheels keep the world moving. Wheels go ’round and ’round. There really doesn’t seem to be a wheel that looks upside down. The first wheels were logs attached to something called a "sledge." Heavy things that need to roll were put on top of the sledge. Wheels keep us moving in and out of town. Wheels take us to the country. Land a plane. Move a truck and hardly ever get stuck. Where would we be without the invention of the wheel? Wheels move just about everything on land—so let’s draw some very interesting wheels. Here’s a hint—remember what you learned about drawing slanted lines. Think of a wheel as a diamond with the points rounded off.

Draw early wheeled workers.

- Sledge on rollers
- Cart with solid wheels from cut logs

What can you draw that uses one wheel?

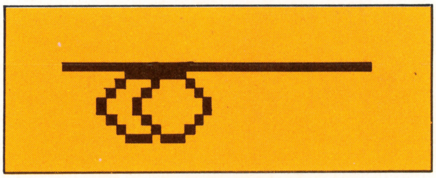
- Unicycle
- Wheelbarrow
- Sternwheeler Paddle Boat

What can you draw that uses two wheels?

- Bicycle
- Motorcycle
- Rickshaw
- Chariot

What can you draw that uses three wheels?

- Tricycle
- Airplane
- Motorcycle with side car



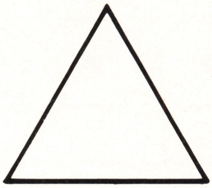
What can you draw that uses four wheels?

- Car
- Horse Carriage
- Wagon
- Baby Buggy

What can you draw that uses more than four wheels?

- Semi Truck
- Moving Van
- Bus
- Tow Truck

Check your drawings with the ones on page 114.

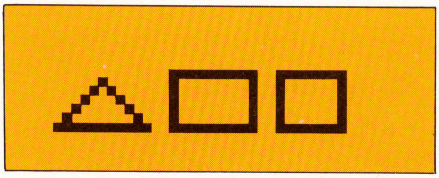


GEOMETRIC SHAPES

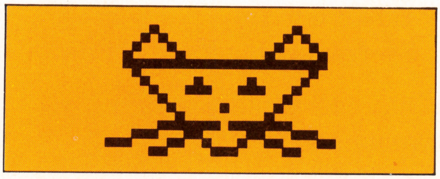
Some geometric shapes are the triangle, rectangle, and square.

Geometric art is using geometric shapes as a design form—a form which may look like something you know—a square face, for example. Or it may not look like anything you see around you. It may be many geometric shapes put together because they make an interesting picture. It's fun to create combinations of geometric shapes.

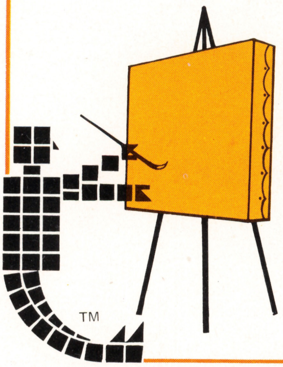
Let's draw some geometric designs!



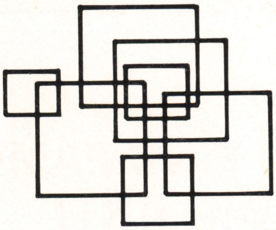
Now let's draw some real and funny geometric art:



- Triangle cat
- Rectangular house with triangle windows
- Silly cow
- Triangle light bulb with pull chain



Check your drawings with the ones on page 115.



THE CUBE IN CUBISM

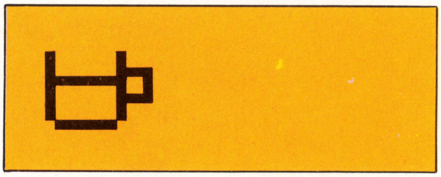
Before there were cameras, artists painted exactly what they saw so people would have painted "photographs" and remember what they had seen.

After the camera was invented, artists painted in many new ways. We call these different art ways, "styles."

One of the most popular art styles is Cubism.

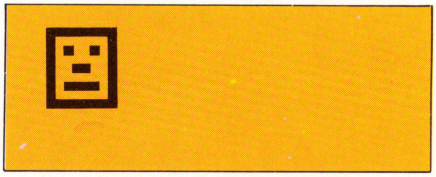
Cubism is a way of drawing or painting using only geometric shapes—squares and rectangles, circles and angles. If you thought of an apple in its cubist form, it would be a circle with a rectangle stem. Look at the picture below.

Drawing on your computer is a fun way for you to become a Cubist (a person who does art using the Cubist style.) Some very famous artists like Pablo Picasso, George Braque, and Fernand Leger were known for Cubism.



Can you draw these in the cubist style?

- Cup
- Bowl
- Lamp on a table
- Your favorite toy.



"GEE THAT LOOKS LIKE ME!"
TM

Check your drawings with the ones on page 115.

LET'S GO AROUND THE WORLD AND FIND FAMOUS BIG ART!

All over the world are huge monuments that people have built over the years. They are really works of art just like famous paintings or small sculptures are.

Is there big art in your city? It's exciting to see and really fun to draw.

What big art is Egypt famous for? Draw it.

Pyramid or a Sphinx

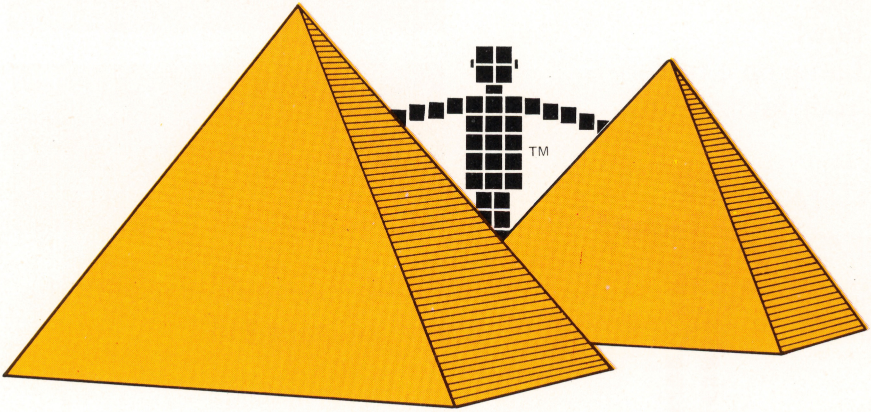
What big art is San Francisco famous for? Draw it.

Golden Gate Bridge

What big art is South Dakota famous for? Draw it.

Mount Rushmore

Check your drawings with the ones on page 116.

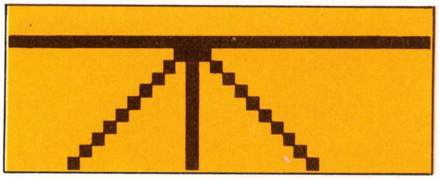


THE ART OF PERSPECTIVE

Perspective is a way of drawing so that things that are close to you look bigger and things that are farther away from you look smaller. Look outside through a window. The trees that are closest to you look much bigger than the ones across the street or a block away...even though you know they are really about the same size.

So when you draw what you see through your window, the things closer will be drawn bigger than the things farther away.

EXAMPLE: This is a drawing of a road using the art of perspective

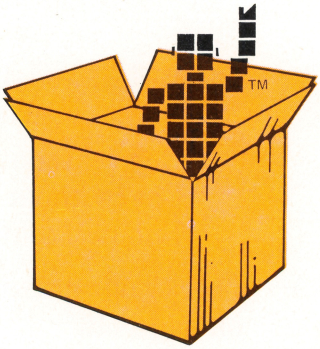


You know a road does not come to a point, but it is drawn that way in perspective.

Can you draw these in perspective?
Box
Fence
One of your books

Check your drawings with the ones on page 116.

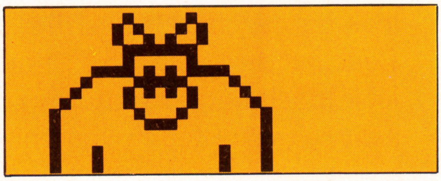
See if you can think up other objects which show you how perspective works?



ANIMALS ARE ALWAYS FUN TO DRAW!

Animals can make funny art. Pick an animal from the list on the left. Draw half of it on the screen. Have your friend draw the other half of a different animal from the list on the right side.

EXAMPLE:	CAT	GORILLA
	Your part	Friend's part



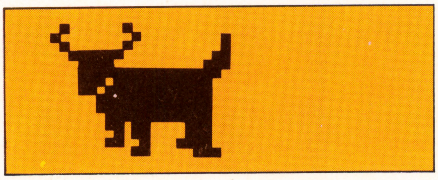
Now combine these animals to make your own wacky drawings.

Cat
Dog
Rabbit
Zebra
Giraffe
Hippopotamus
Cougar
Parrot
Pig
Lion
Gorilla
Monkey

You draw half an animal. Have a friend finish it. Then switch.

Draw these funny mixed-up animals on the screen. Have your friend guess what the two animals are.

Catbit
Zebog
Girat
Rabaffe

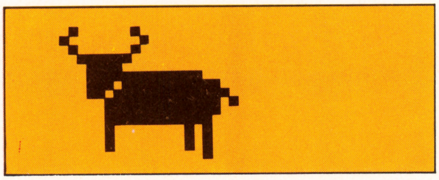


Something's missing!

You draw part of the animal. Have your friend fill in the missing parts.

EXAMPLE: You draw a three-legged cow. Your friend draws in the missing leg.

Dog (without tail)
Cat (without ears)
Bull (without horns)



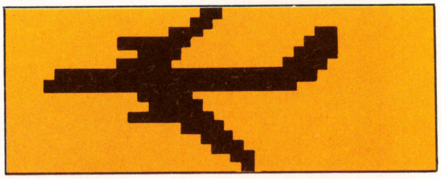
Check your drawings with the ones on page 116.

THINGS THAT FLY

Combine history and wings and what follows? Art that will give you a flying start. Let's have some fun. First arrange this list of "things with wings" in the order they came in history. Then draw a picture of each.

Jet Airplane
Balloon
Space Rocket
Propeller Plane
Bird
Glider

Check your answers on pages 116 and 117.



Draw different kinds of birds.

Blue jay
Eagle
Flamingo

Draw the different phases of bird life.

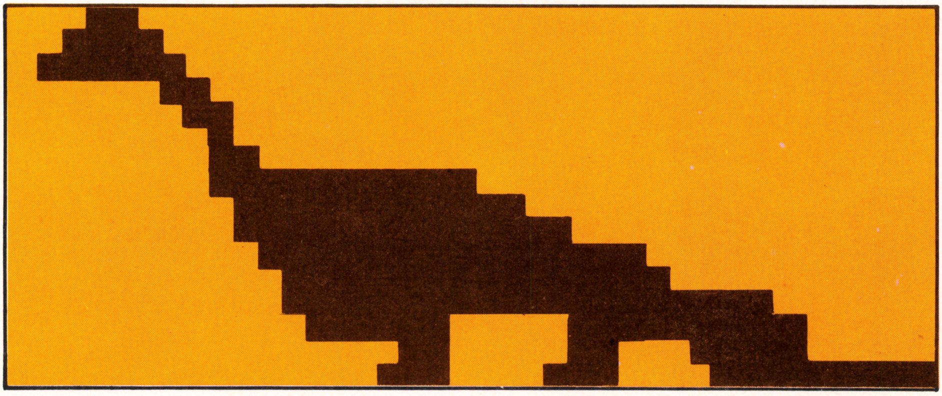
Egg
Nest
Mother bird sitting on egg in nest
Egg hatching
Baby bird gets fed
Baby bird learns to fly

Check your drawings with the ones on page 116.

DINOSAURS IN ART!

Do you remember some very big friends from prehistoric times? Of course! They are dinosaurs. Three of the most famous ones are written below. Draw them on the screen. See if your friend can guess its name. Can he or she spell it right, too? Take turns drawing and guessing.

Brachiosaurus



EXAMPLE:

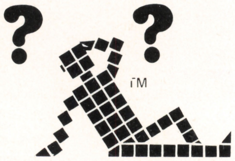
See how interesting your computer drawings will be of these:

Brontosaurus
Stegosaurus
Brachiosaurus

Check your drawings with the ones on page 117.

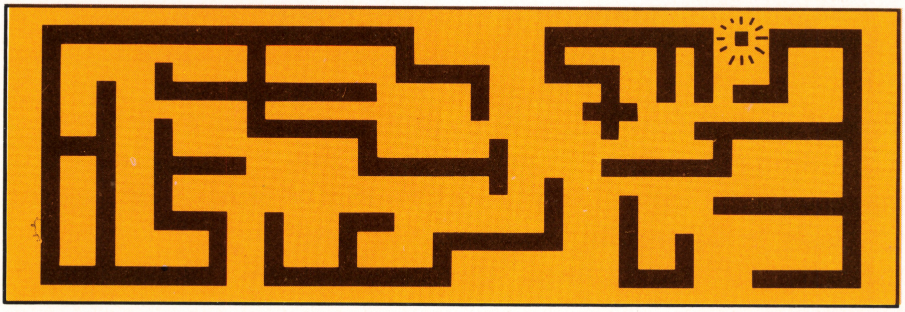
ART GAMES TO PLAY!

With these games, you must draw something before you can play. Find a friend and play a few. When you are through make up another slew.

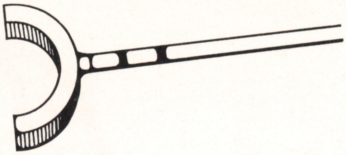


IT'S AMAZING. IT'S A MAZE!

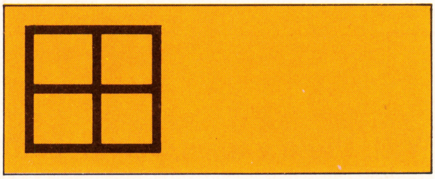
Draw a maze of any shape or size. Take your time and think it out carefully as you create it. Let your friend find his or her way through it. Use the ARROW keys to move the blinking cursor through the maze. Now it's your friend's turn to draw a maze for you.



IT'S ART SHUFFLEBOARD!

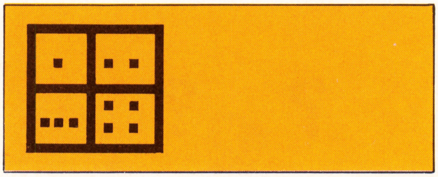


This is a computer deckside game for two. The object is to get exactly 11 points. If you get more or less, the other player wins. Here's how to play:

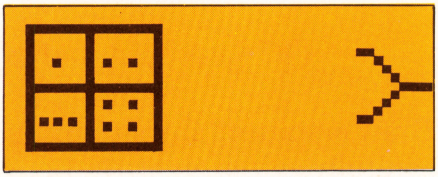


1. Draw a court with 4 sections at one end of the screen.

2. In the first section of the court, put in one square. In the second section of the court, put in two squares. In the third section of the court, put in three squares. In the fourth section of the court, put in four squares.

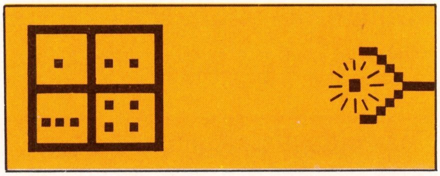


Each square counts for one point.



3. Draw a cue stick at the other end.

4. The cursor is the playing disc. Move the cursor to the center of the cue stick. With the blinking cursor in the cue stick, press the ▦ key. Your cursor is now invisible.



5. Press LEFT ARROW key. Keep pressing it to keep the cursor moving. Stop pressing when you think the cursor is close to the point section you want. Then press UP or DOWN ARROW key to get it closer to the section you want. Now press the ▦ key again to make the cursor reappear. Player gets the points where the cursor lands.

6. Move the cursor back to the center of the cue stick.

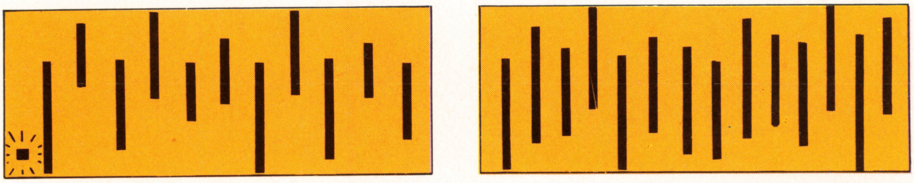
7. Next player takes a turn.

Winner is the player who reaches 11 points first.

PLEASE DON'T HIT THE STICKS!

This obstacle course will test your memory. It's a game for two players who have mastered the computer drawing challenge. Here's how to play:

1. Draw an obstacle course like the one shown here. Make it as hard or simple as you want. Try drawing many different ones to make all your games more challenging.



2. Player One places the cursor in the bottom left-hand corner.

3. Player One then presses the ▩ key.

4. Player Two presses the UP ARROW key until he or she thinks the cursor is in the right spot to be able to clear the obstacle sticks.

5. Player Two presses the ▩ key to make the cursor appear.

6. Player Two presses the RIGHT ARROW key to move the cursor all the way through the course to the other side.

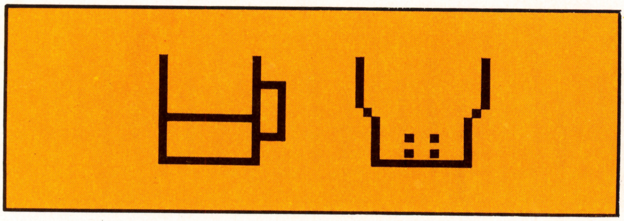
7. Each stick the cursor hits gives one point.

8. After Player Two adds up the total hits, it's Player One's turn. LOW SCORE WINS.

ART PUZZLES THAT ARE

Here's a fun test of your computer drawing talent.

CAN YOU GET THE SUGAR CUBES INTO THE COFFEE CUP?



Try it this way:

1. Draw a coffee cup on the left side of the screen and a sugar bowl on the right side of the screen. Follow the picture here.

2. Draw the sugar in the bowl.

3. Move the cursor onto one of the sugar cubes.

4. Press the ERASE ERASE key. The cursor becomes the sugar cube.

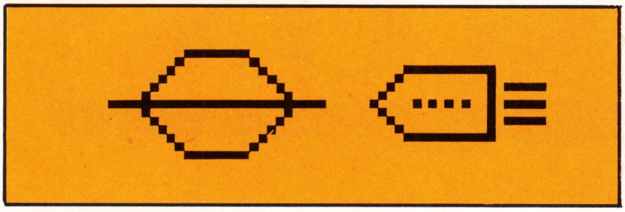
5. Now use ARROW ▲ ▶ ▼ ◀ keys to lift the sugar cube up, over and down into the coffee cup.

6. When the sugar cube is in the cup, press MARK MARK key. You will leave the sugar cube in the cup.

7. Repeat steps 3 through 6 until all the sugar is out of the bowl and into the coffee cup.

BLINKING BAFFLERS!

CAN YOU LOAD THE ASTRONAUTS INTO THE SPACE STATION?



Maybe this will help:

1. Draw a space station on the left side of the screen. Draw a rocket-ship on the right side of the screen.

2. Put four astronauts into the rocketship.

3. Move the blinking cursor until it is on one of the astronaut squares.

4. Press the ERASE ERASE key. The cursor becomes the astronaut.

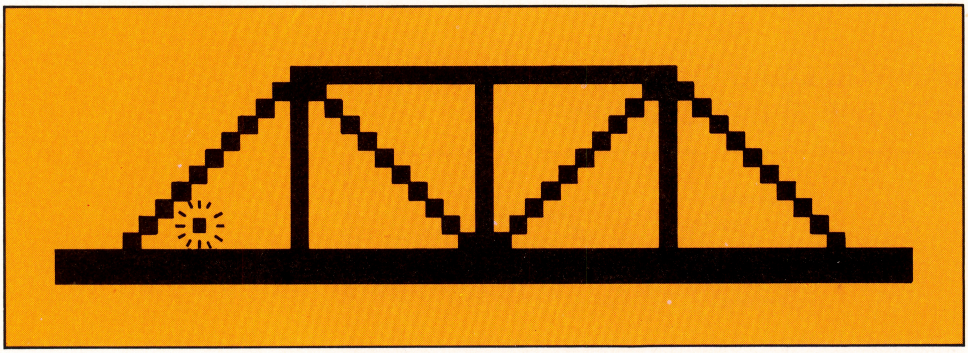
5. Now use the ARROW ▼ ◀ ▲ ▶ keys to move the astronaut through space into the space station.

6. When the astronaut is in the space station, press the MARK key. You will leave the astronaut there.

7. Repeat steps 3 through 6 until all the astronauts are in the space station.

ONE MORE BLINKER!

CAN YOU DRIVE THE TRAIN ACROSS THE TRESTLE?



Try it this way:

1. Draw a trestle on the screen. Follow the drawing you see here. Make sure you are making all the straight timbers on the trestle the same height and the same distance apart.

2. Put the blinking cursor on the left side of the trestle just above the "track." This is your train.

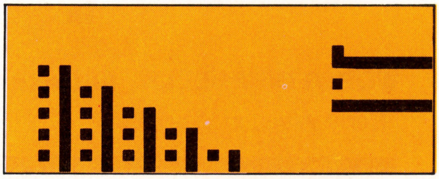
3. Press RIGHT ARROW ▶ key and keep your finger on it to move the train across the trestle. It will automatically come back to the left side after going off the right side.

YOU DID IT! Congratulations, engineer.

toot toot!
TM

TRIPLE
MEET THE TRICKY TRIPLE TARGET CHALLENGE
TRIPLE

This is a drawing game with three tough challengers. The first is drawing it just right. The second is firing the gun to get the highest score. The third is reloading the gun.



Let's get started.

1. Draw a gun barrel, bullet and five targets just like the picture here.

2. Put one point mark in the first section of the target. Two in the second section. Three in the third section. Four in the fourth section. Five in the fifth section.

3. Move the blinking cursor into the center of the gun barrel. Press the ▦ key. The cursor is now an invisible bullet.

4. Press LEFT ARROW ◀ key and keep pressing until you think the bullet is over the target with the most point marks.

5. Press ▦ key to make bullet appear. The player gets the points under the bullet. If the bullet lands over a dividing line, the player doesn't get any points.

6. Press ▦ key. Bullet will disappear.

7. Press RIGHT ARROW ▶ key. Keep pressing it until you think the bullet is back in the gun barrel.

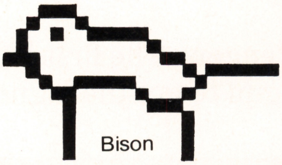
8. Press ▦ key to make the bullet appear. If the bullet is outside the gun barrel, the player loses all his or her points.

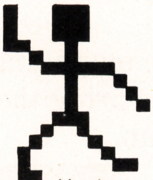
9. The next player takes a turn.

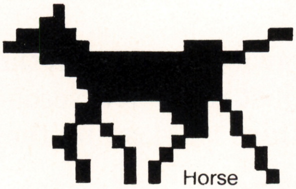
10. Keep playing until each player has taken three turns. Player with the highest score after three turns wins.

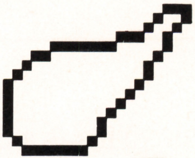
ANSWERS AND DRAWINGS FOR ART MODE

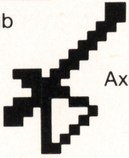
HOW DID ART GET STARTED? Answers for page 98.


Bison


Hunter

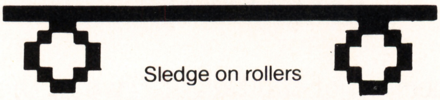

Horse

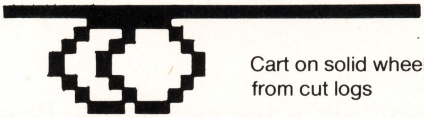

Club


Axe

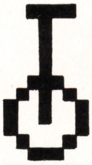
WORLD OF WHEELS Answers for page 99.

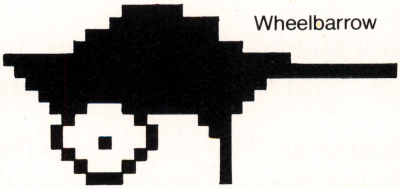
Early Wheeler Workers:

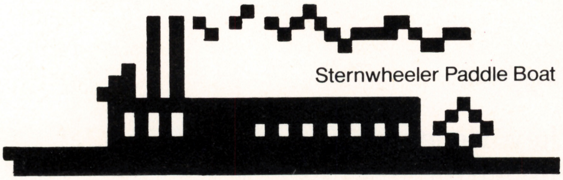

Sledge on rollers


Cart on solid wheels
from cut logs

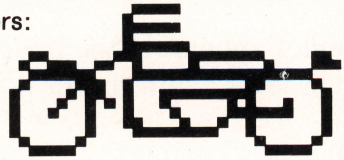
One Wheelers:

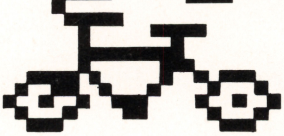

Unicycle

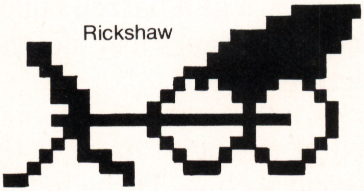

Wheelbarrow

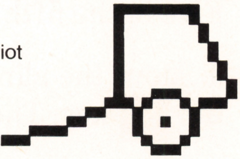

Sternwheeler Paddle Boat

Two Wheelers:

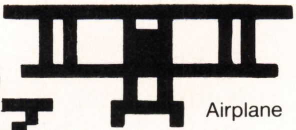

Motorcycle

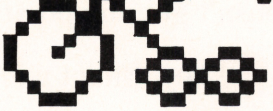

Bicycle

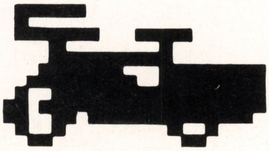

Rickshaw


Chariot

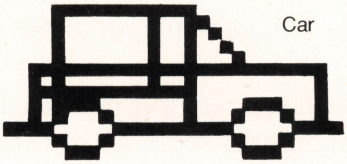
Three Wheelers:

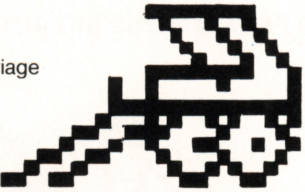

Airplane


Tricycle

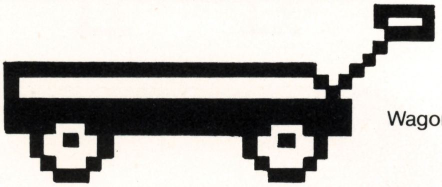

Motorcycle
with side car

Four Wheelers:

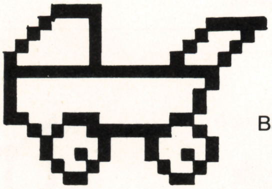

Car



Horse Carriage



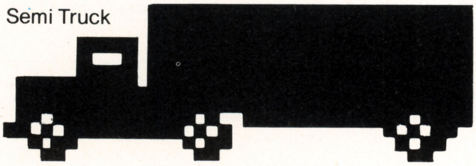
Wagon



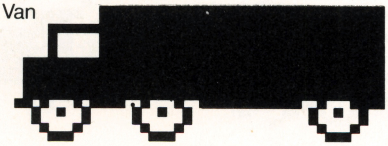
Baby Buggy

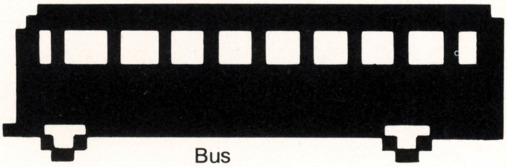
More Than Four Wheels:

Semi Truck

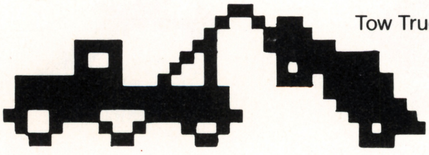


Moving Van





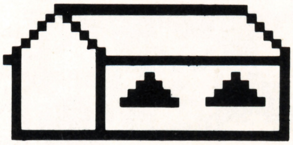
Bus



Tow Truck

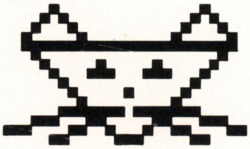
GEOMETRIC SHAPES

Answers for page 100.

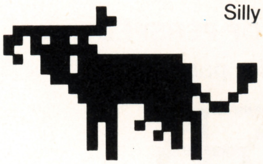


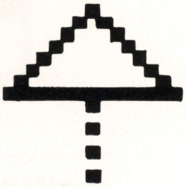
Rectangular house with triangle windows

Triangle Cat



Silly Cow

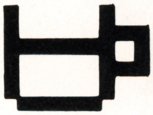




Triangle light bulb with pull chain

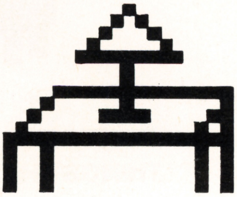
THE CUBE IN CUBISM

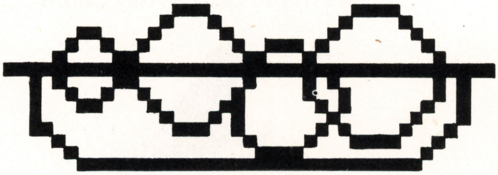
Answers for page 101.



Cup

Lamp on table

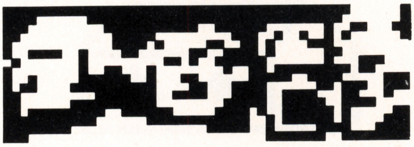




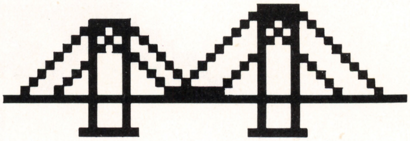
Bowl

LET'S GO AROUND THE WORLD AND FIND FAMOUS BIG ART!

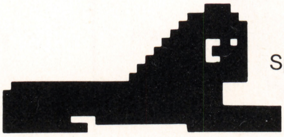
Answers for page 102.



Mount Rushmore



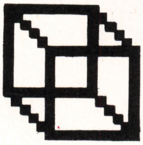
Golden Gate Bridge



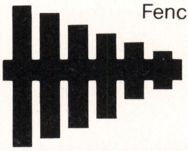
Sphinx

THE ART OF PERSPECTIVE

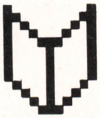
Answers for page 103.



Box



Fence

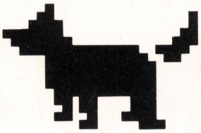


One of your books

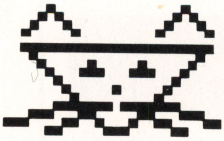
ANIMALS ARE ALWAYS FUN TO DRAW!

Answers for page 104.

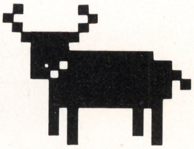
Something's Missing:



Dog and tail



Cat and ears

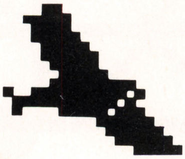


Bull and horns

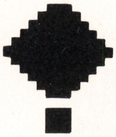
THINGS THAT FLY

Answers for page 105.

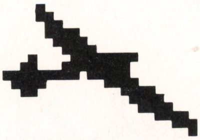
Flyers in the Order They Came:



Bird

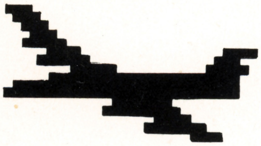


Balloon

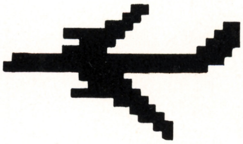


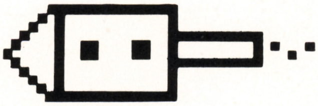
Glider

Propeller Plane



Jet Airplane

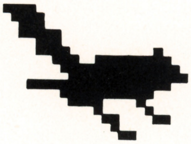


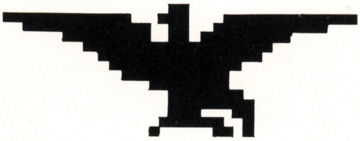


Space Rocket

Different Kinds of Birds:

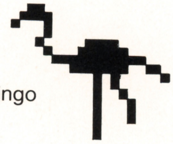
Bluejay



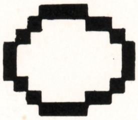


Eagle

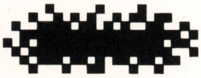
Flamingo



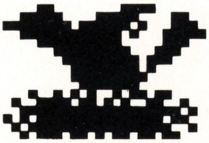
Different Phases of Bird Life:



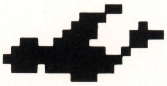
Egg



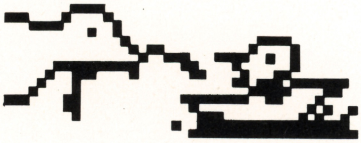
Nest

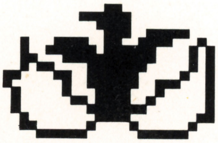


Mother bird sitting on egg in nest



Baby bird learns to fly



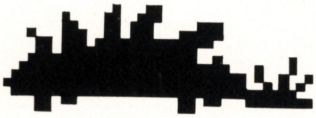


Egg hatching

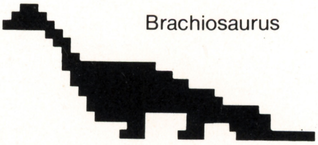
DINOSAURS IN ART

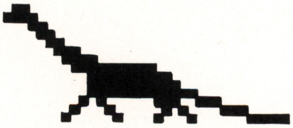
Answers for page 106.

Stegosaurus



Brachiosaurus





Brontosaurus

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